

THIRD SERIES VOL 62 NUMBER 3

JANUARY 1955

THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

66 PORTLAND PLACE LONDON W1 · TWO SHILLINGS AND SIXPENCE



Calcott Mill. Photograph by Stillman and Eastwick-Field [AA]

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THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

THIRD SERIES VOLUME SIXTY-TWO NUMBER THREE
66 PORTLAND PLACE LONDON W1 TELEPHONE LANGHAM 5721-7

TWO SHILLINGS AND SIXPENCE
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JANUARY 1955

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New Year Honours List

Privy Councillor. Nigel Birch, M.P., Minister of Works.
Knight Bachelor. S. Gordon Russell, C.B.E., M.C., R.D.I. [Hon. A.]
C.B. S. W. C. Phillips, Under-Secretary, Ministry of Housing and Local Government.

G.B.E. Viscount Esher [Hon. F.]

K.B.E. Eric Seal, C.B., Deputy Secretary, Ministry of Works.
Sir John Stopford, Vice-Chancellor, University of Manchester.
C.B.E. W. H. Ansell, Past President. N. C. Macnamara, Chairman and Managing Director, Trollope & Colls. H. S. Goodhart-Rendel, Past President. J. M. Fraser [A], Singapore Improvement Trust.

K.C.V.O. Sir Gerald Kelly, R.A. [Hon. F.]

O.B.E. A. D. R. Cowley [A]. Gerald A. Hill, Director, Higgs & Hill Ltd. C. A. Richards [A], Superintending Architect, War Office. F. Charles Saxon, M.C., Vice-President. Michael G. F. Ventris [A].

M.B.E. R. W. Porter, Director, Eastern Federation of Building Trades Employers.

The Christmas Holiday Lectures

It was both a novel and refreshing experience to listen to an architect talking about designing a building in which the spiritual element predominated over the functional. If the close attention and vivid questions of Mr. Basil Spence's audience are a guide, it seems sure that the young of today feel the need for an architecture with a real spiritual content, something more than well-lit and well-warmed enclosed space.

The Christmas Holiday lectures organised by the R.I.B.A. have long been of outstanding quality. This year's lectures have raised the standard even higher.

The Trinidad and Tobago Society of Chartered Architects

The qualified architects in Trinidad and Tobago formed the Trinidad and Tobago Society of Chartered Architects on 18 December last. The Society is fully representative of the chartered architects in Trinidad and has an initial membership of 18. The Chairman is Mr. A. J. Prior [F] and the Hon. Secretary/Treasurer is Mr. J. R. Firth [A] of Works and Hydraulics Dept. (Architectural Branch), 1 Edward Street, Port of Spain, Trinidad, B.W.I. The Society intends to establish contact with architects in other West Indian Colonies with the ultimate aim of alliance with the R.I.B.A.

Professor A. E. Richardson [F] P.R.A.

The Council have warmly congratulated Professor A. E. Richardson on his election as President of the Royal Academy.

London Builders' Conference

In reply to a question in the House of Commons on the 21 December, the Minister of Works made the following statement: 'In future, firms will not be included on any list of approved Government contractors for new buildings if in tendering for such work they follow the practices criticised by the Monopolies and Restrictive Practices Commission. The firms already on the lists are being asked to confirm that they wish to remain there and accept this condition. This will make it unnecessary to continue the use of the form of declaration which was directed against these practices. The attention of the Associations of Local Authorities is being drawn to the report and to the action taken.'

The Council welcome the Minister's statement and suggest that members should act in a similar manner as regards any lists of firms they may keep for the purpose of inviting tenders. If such assurances are obtained, it will no longer be necessary to require the individual undertaking recommended by the Council in the R.I.B.A. JOURNAL for August 1951, page 378.

New Homes for Old

The Ministry of Housing and Local Government have published a handbook under this title dealing with improvements and conversions of old but structurally sound houses. It explains the grants available for this purpose and how they can be obtained. Various schemes of improvement and conversion are shown by 'before and after' plans and photographs, and the 'Twelve Points' defining the standard to be reached are set out.

In a foreword the Minister commends the handbook to property owners, architects, builders and local authorities. It is published by H.M.S.O., price 3s. 6d.

Amendments to the Scale of Charges

The Council have approved certain drafting amendments to the R.I.B.A. Conditions of Engagement and Scale of Professional Charges which take effect from 7 December 1954. These are set out fully on page 122 of Notes and Notices in this JOURNAL. Briefly, the amendments specify with greater precision than heretofore the drawings, documents, etc., which are to be provided under the various scale fees and those which are to be charged for in addition to the fees.

Housing Medals 1955

As previously announced, the scheme for the award of medals and diplomas made by the Minister of Housing and Local Government has been changed. This year they are to be awarded in each of the eleven regions for: (A) The best designed privately owned house or houses built for letting or sale since the end of the war by firms of builders or property owners. (B) The best schemes of improvement or conversion carried out by private owners or by public authorities.

In category A, entries may be submitted either by the architect or by the builder, provided the consent of the owner has first been obtained. The Awards Committees are to have regard to the economical and appropriate use of materials and to good internal planning as well as external design. When considering a group or scheme comprising several houses particular regard is to be paid to layout. The siting of individual houses in relation to landscape and to any neighbouring properties is also important. Regard will be paid to points incidental to good design, such as site requirements in regard to building lines and boundaries, the treatment of fences, walls, gates and the use of planting. The small economical house or scheme will have as much opportunity of winning an award as the larger, more expensive one.

Entry forms for these private schemes are obtainable from the regional offices of the Ministry, a list of which is given below.

A scheme entered under B, the improvement and conversion competition, should be one that has attracted a grant under the Housing Act 1949 or be of a character and extent similar to such schemes. A scheme of a more expensive or luxury type will not be eligible.

The 1955 scheme of awards is being organised by the Ministry in collaboration with the R.I.B.A., the Royal Institution of Chartered Surveyors, the Town Planning Institute, local authorities' associations and the National House Builders' Registration Council. Not more than two awards in each class of entry will be recommended by each Regional Awards Committee. Medals and diplomas will be presented to the architects or designers and diplomas to the builders of winning schemes.

In both categories post-war schemes completed by the end of 1954 will be eligible. Entries must be sent to the appropriate regional offices of the Ministry of Housing and Local Government, from whom entry forms are obtainable, by 26 February.

The Regional offices of the Ministry are: (1) Government Buildings, Kenton Bar, Newcastle upon Tyne, 3; (2) Government Buildings, Lawnswood, Leeds, 6; (3) Government Buildings, Chalfont Drive, Western Boulevard, Nottingham; (4) Brooklands Avenue, Cambridge; (5) Ministry of Housing and Local Government (London Region), Whitehall, S.W.1; (6) Whiteknights Park, Reading; (7) Flowers Hill, Brislington, Bristol, 4; (8) Cathays Park, Cardiff; (9) Severn House (Second Floor), Suffolk Street, Birmingham, 1; (10) Government Buildings, Warwick Road South, Old Trafford, Manchester, 16; (11) Ministry of Housing and Local Government (South-Eastern Region), Whitehall, S.W.1.

Whole Time Officials and Private Practice

Members are reminded of the statement of policy in regard to the undertaking of spare time private work by members in whole time salaried employment.

The Council consider that permission to undertake spare time private work is a matter for the employing authority. Where, however, such permission is given, a member must scrupulously observe the R.I.B.A. Code of Professional Conduct, with especial reference to Clauses 10, 11 and 12 thereof. The importance of Clause 12 is emphasised. It is essential that any salaried member who may be in a position, by reason of his office, to grant or influence the granting of any form of statutory approval should avoid being placed in a position even of suspicion that he might be using his office for personal advantage.

R.I.B.A. Symposium on High Flats

The speakers and subjects at the Symposium on High Flats to be held by the R.I.B.A. on 15 February are: Opening address by the Minister of Housing and Local Government, the Right Hon. Duncan Sandys, M.P.; Mr. H. J. Whitfield Lewis [A], Principal Housing Architect to the L.C.C. (The principles of mixed development, the ratio of tall to low buildings, densities and the effect of forms of heating); Dr. R. Bradbury [F], City Architect and Director of Housing, Liverpool (Aspects of American experience and its application to this country); Mr. Frederick Gibberd, C.B.E. [F] (High flats in medium sized towns and suburban areas); Miss Margaret Willis (Sociological implications; tenants' viewpoint); Major R. A. Jensen [F], Director of Housing and Borough Architect, Paddington (High flats and higher densities in Europe and the metropolis); Mr. A. G. Sheppard Fidler [F], City Architect, Birmingham (Architectural problems involved with high flats in urban reconstruction); Mr. K. Lack [A] (Fire protection in and design of high flats); Mr. A. W. Cleeve Barr [A], Senior Architect (Development) Architect's Department L.C.C. (Effect on design of services and building techniques); Mr. Felix Samuely, M.I.C.E., M.I.Struct.E., and Mr. Peter Duncan, A.M.I.Struct.E. of Ove Arup and Partners (Principles of structural design, framing, cladding and foundations); Mr. J. R. Mitchell of Wates Ltd. (Problems of erection and site organisation; use of mechanical equipment; collaboration between architect, engineer, contractor, etc.); Dr. J. C. Weston, of B.R.S. (Economics of multi-storey flat design).

Concluding the afternoon session Mr. J. H. Forshaw, C.B. [F], Chief Architect to the Ministry of Housing and Local Government and to the Ministry of Health, will give a critical summary of previous papers and discussions. The Chairman is Dr. J. Leslie Martin [F], Architect to the London County Council.

Admission is by ticket only at 10s. 6d. each which covers morning coffee, buffet lunch and tea. Applications should be addressed to the Secretary, R.I.B.A., accompanied by cheques or postal orders. Early application is advisable.

Bound Copies of the Journal

A limited number of bound copies of the sixty-first volume (1953-54), which was completed with the October issue, will be available early in April. Loose numbers of the volume must be returned in exchange for the bound volume. Prices: bound in paper sides, strong linen back, 7s. 6d. plus 1s. 6d. postage; bound in buckram boards, gilt lettering, 12s. 6d. plus 1s. 6d. postage; buckram binding cases, 6s. plus 9d. postage. Orders should be addressed to the Secretary, R.I.B.A.

Index to Practice Notes

An index to Practice Notes published in the JOURNAL from January to December 1954 has now been prepared, and copies may be obtained free of charge on application to the Secretary, R.I.B.A.

Copies of the previous indexes for 1945-53 are still available and may also be obtained on application.

R.I.B.A. Diary

TUESDAY 1 FEBRUARY. 6 p.m. President's Address to Students. Criticism by Mr. Raymond C. Erith [F] of work submitted for Prizes and Studentships. Presentation of Prizes.

MONDAY 14 FEBRUARY. 6 p.m. Library Group Meeting. Mr. Kenneth S. Mills [A] will introduce an evening on *William Bainbridge Reynolds* (1855-1935).

TUESDAY 15 FEBRUARY. 10 a.m. to 6.30 p.m. Symposium on High Flats. Admission by ticket only, price 10s. 6d. including coffee, buffet lunch and tea.

FRIDAY 25 FEBRUARY TO THURSDAY 24 MARCH inclusive. Exhibition: *German Architecture Today*. Mondays-Fridays, 10 a.m. to 7 p.m. Saturdays, 10 a.m. to 5 p.m.



Chandigarh: The Capital of the Punjab

By E. Maxwell Fry, C.B.E. [F]

Read before the R.I.B.A. on 4 January 1955. The President in the Chair

GANDHI'S CLOSING DAYS and the dawn of Indian independence were clouded by the schism between Muslim and Hindoo that led to the partition of the Punjab in a welter of blood and horror, with refugees innumerable upon each side, and dislocations everywhere.

With a new border that force shut out old friends and relatives, abandoned lands and possessions, and the city of Lahore, cherished and above all things special for the Punjabis, a Government assembled among the relics of British summertime imperialism in Simla, and in a medley of unsuitable buildings set about creating order from chaos on the plain below.

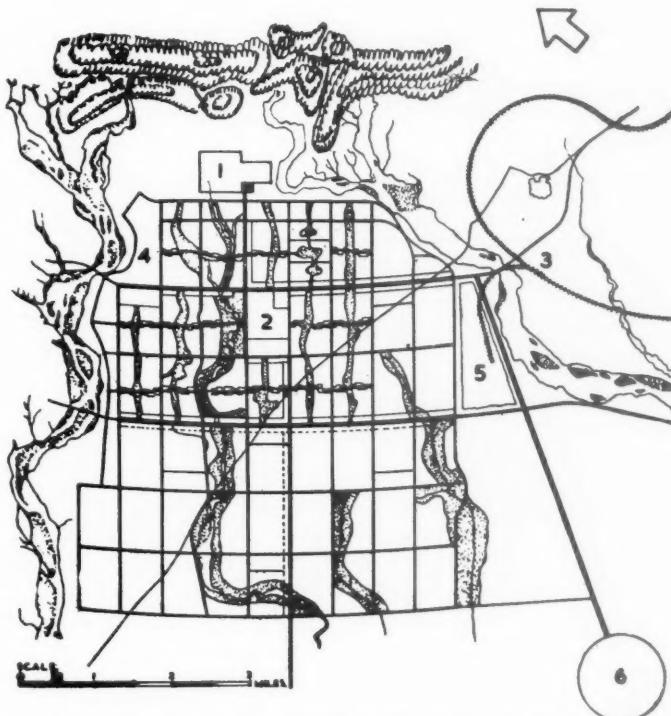
The task of re-settling millions of refugees—widows and orphans, unskilled and unsuitably skilled—was a first charge upon government; but the idea of a new capital city to replace Lahore and to be a rallying point for Indian Punjabis must have sprung from the midst of disaster, and became associated with the refugee problem of which the Government, shivering through an Himalayan winter, knew itself to be a part.

Yet nothing in the demeanour of those who visited us in the winter of 1951, nor in the members of the Government I met in the following spring, betrayed other than an anxiety to create the best possible city in the shortest time, and an unquenchable determination to turn disaster to good account, not only for the Punjabis, but if possible for the world at large.

What attracted us in these men who visited us and made us throw aside what we were doing to go to India and work for them on the site was the mixture of idealism with what I hold to be the divine principle of energy with which they put their case. At the time we thought Mr. P. L. Varma, the Chief Engineer, who sat on the carpet and declared himself prepared to wait for an answer, was the idealist, since engineers commonly run this way; and Mr. P. N. Thapar, I.C.S., the Administrator, who overstated nothing, was the man of sense; but, in fact, they were Punjabis both, with qualities of toughness and sensibility which we like to associate with Yorkshire, but are as native in North India.

As Jane Drew and myself were unable to start together because of work still to be done on the Festival of Britain, it was found possible to enlarge the group—to enlarge it indefinitely in one direction—by bringing in Le Corbusier as architectural adviser; and thus the team that finally addressed itself to the job included him and his cousin Pierre Jeanneret.

There existed a master plan prepared by



The general plan. Key: 1, The Capitol; 2, City Centre; 3, Railway Station; 4, University; 5, Industrial area; 6, Airport

Mr. Albert Mayer of Mayer & Whittlesey, New York, but the plan that finally emerged from the combined efforts of Mr. Mayer and ourselves, assembled in the rest house at Chandigarh village on the trunk road from Delhi to Simla, owes nearly everything to Corbusier, what though each stage, analytical and creative, in coloured pencil and spidery beautiful lines, was open to debate in French or English, but mostly in French, and much of it bad French.

But it was with an agreed plan that we started the work in a ramshackle building in Simla, and built up our Indian staff of architects and town planners from a small nucleus, and it is a plan that responds clearly to Corbusier's ideas on the modern city, though fate decreed that it should be a two-storey solution.

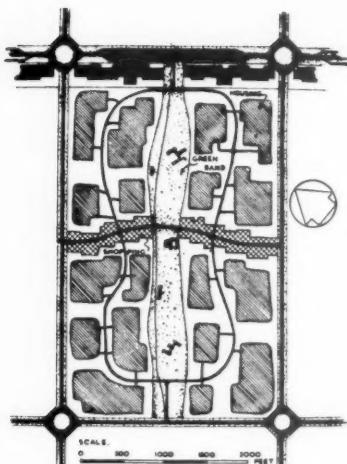
Corbusier's cure for urban congestion rests upon two things: the separation of the functions of motor traffic and pedestrian movement; and the freeing of the ground for the latter by building in high-storey flats and offices. Dr. Leslie Martin of the L.C.C. is proving that London congestion responds to the thesis that high-storey flats can restore the use of the ground to

pedestrians, but as such a solution could not be contemplated at Chandigarh, nor were high-level roads a possibility, the solution proposed rests upon the legal, and to some extent the physical, segregation of a major road-grid to fast-moving traffic.

This grid, which is the basis of planning, intersects at half-mile intervals across and three-quarter-mile intervals up the plan, avoiding the direct western sun, which is the curse of some South American cities, and aligning with the fall of the land and the view of the Himalayas on the longer axis.

The sectors formed by the grid enclose some 240 acres of land and up to 15,000 people and are bisected from north-west to south-east by a street for mixed traffic, upon the shady side of which the local shops, markets, offices and entertainments are sited: a High Street, continuous across the master plan.

On the longer axis, from north-east to south-west, the sector is again bisected, but this time by a band of open space, containing also a cycle track and a path and devoted to recreation, relaxation, and education; continuing also across the plan.



Plan of a typical residential sector

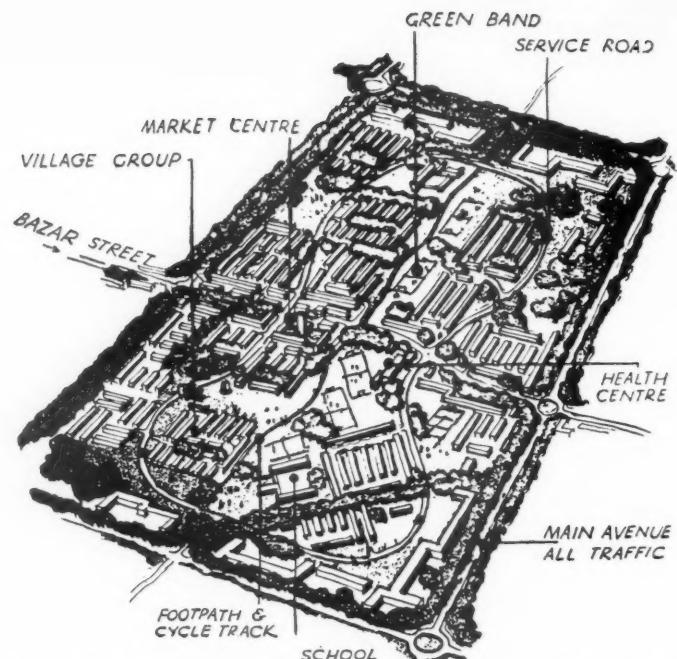
The sector is thus ringed internally by a road touching the High Street at two points only and the outer fast-traffic roads at top and bottom of the sector, and thus—as cardinal to the whole idea—the sector is planned internally; looks internally for its access to local shopping and amusements, to primary and nursery schools, open space; and for extra-local needs finds public transport at defined points on the High Street or on the peripheral fast-traffic roads, or uses one of four defined exits from the sector.

With all interests thus turned to the internal organisation of the sector, it is possible to deny all frontage development upon the bounding fast-traffic roads, and to restrict them to motor traffic only, with interruptions at two-thirds of a mile intervals in the one case, and at a quarter of a mile in the other. As little or no pedestrian traffic will originate from them, these roads may properly be classified as safe fast-traffic roads, ideal for the operation of a public transport system.

The system could be endangered by the establishment of illegal pedestrian tracks across from sector to sector, but these are controllable; and in the experimental Sector 22 brick and stone walls have been built as if the road were a railway line, and indeed it is little less dangerous.

But its chief protection lies in the internal planning of the housing, drawing the unconscious attention *inward* to the two elements of the High Street and the open space; the one catering for the busy, social, rubbing-shoulders side of life; and the other for the needs of infancy and youth, recreation, contemplation and age.

The system does not achieve the degree of separation of Corbusier's *Ville Radieuse* which in any case presumes a high pressure of population and a high level of mechanical development. But for the lower pressures of Indian urban life it canalises fast traffic on the periphery of the sector; and within it frees the pedestrian for relatively safe movement to the High Street or to the open space, and both within the shortest distance



Perspective of a residential sector which is bounded by fast traffic roads and entered at four points only

possible. No other system that I know of does so at so little expense: it is a planner's solution.

The site upon which this takes place is a stretch of fine agricultural land lying between two river beds about five miles apart. It falls at an average gentle slope of 1 in 100, which is ideal for drainage, sheds off slightly to the river beds, and is scored by a subsidiary stream bed, heavily eroded, along an irregular band running from top to bottom of the plan.

Groves of mango trees resembling oak and wide-spreading peepul trees mark the sites of 26 villages or hamlets, and beyond them to the north-east are low hills standing below the ramparts of the Himalayas that rise immediately to 5,000 feet and form the permanent but ever-changing background of the city. It is a splendid site; practical, but romantic.

The road grid is therefore imposed on flat land with few irregularities and the significant form of the city is registered in the placing of the Capitol at the head, between the road grid and the low hills; by the creation of a city park along the line of the eroded stream bed, with an extension towards the cultural centre to the north-west; by the emphasis of an entrance road from the station and a Capitol approach road in the other direction; and by the situation of a city centre adjoining the crossing of these two major roads.

Unlike the rest of the road grid, these major roads are open to all forms of traffic and their frontages are developed for commerce. The Capitol approach road flanks the city park for most of its length and derives its monumental character from this

and from its heavier and more formal tree planting.

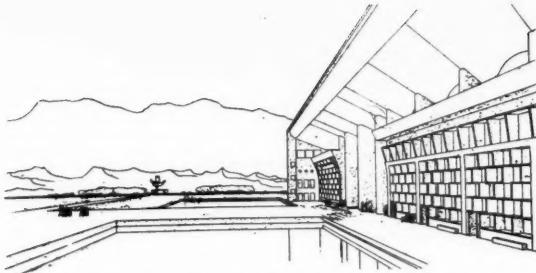
You have thus a practical city plan of straight main traffic roads in which identification is emphasised by the orientation to the sun and the all important Himalayas; by the city park opening a quiet way through the road grid towards the Capitol and the mountains; and by the emphasis of the main arteries. A further emphasis is to be given by tree planting selected for shape and colour.

This is enough to make a city on a noble geometric scale, underlined by trees; and wherever the capital city function is concerned, and even more so in the Capitol itself, this scale is maintained.

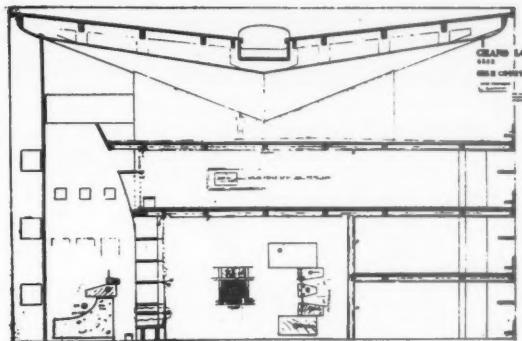
The Capitol group of buildings occupies 220 acres of land at the head of the plan, cut off by a canal and a boulevard from the nearest housing, but approached directly by the wide Capitol approach road.

It is a very carefully adjusted asymmetrical siting of buildings carried to the limits of visual propinquity on a great lay-out of lawn and lagoon. The High Court and Assembly buildings face each other across a broad pedestrian way; the Governor's residence stands back towards the hills; the immense Secretariat, nine storeys in height and over 800 feet long, breaks the rectangle of the western corner, and the monument of the 'open hand' provides subsidiary interest where it is needed.

In order to preserve the garden quality of the lay-out, approach roads to the buildings are in cutting, helped to this end by the erosion of the city park stream bed that leads in to the Secretariat; and the



Perspective and section of the High Court building which has 'a giant roof cantilevering over the court rooms and offices below'



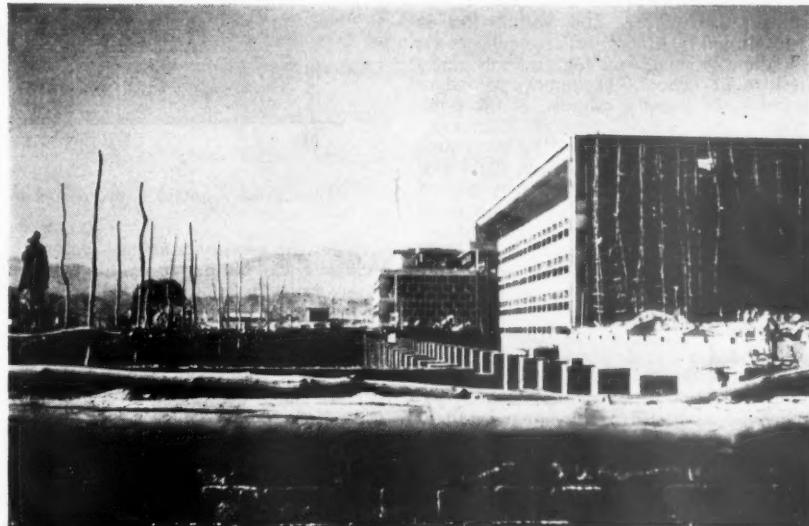
earth from these sunken roads Corbusier heaps into little artificial hills, diversifying the landscape, and emphasising the siting of the buildings.

These exhibit to a remarkable degree his luxuriant and fertile talent, narrowing the gap between sculpture and architecture by the free employment of expanded metal framework to produce effects independent of supporting structure, and in the case of the High Court reminiscent of quite another type of structure. The High Court building, which when I last saw it gave every sign of becoming a noble monument, owes its particular form to Corbusier's reading of the problem of the tropical roof. First producing shade temperature and then protecting the interior as a definition of the problem at once suggested the image of a parasol held over a building, and this lively image he translated into architecture in the form of a giant roof cantilevering over the court rooms and offices below in a series of vaults, resolutely contained by a massive wall at each end, from which great gargoyles spill the monsoon rains on to a tumble of rock in the lagoon 60 feet below.

I have little doubt that the result will justify the means, for within the frame of roof canopy and end walls, and despite a regular disposition of the court rooms and offices, there is a wealth of significant detail, responding to the conditions of climate and the uses of the building, and controlled by the 'Modulor' system of proportion, with its creator behind it.

Of the other building it is perhaps early to speak, except to say that the Secretariat breaks from its rigid office grid to emphasise the quarters of the principal figures of state government, and to void its population of clerks down two ramps held away from the building face. The Assembly building is the freest of these creations. Its canopy roof echoes the spirit of the High Court but the forms of the Government Chambers below are organic and unstructural. The delightful Governor's residence is a return to a simpler medium, but with ravishing interplay of internal volumes leading to fairylike roof gardens held in space: never was a lovelier little palace conceived.

The development of a city centre in the early years of the construction of the city itself is an act of faith. Lacking the pressure



The High Court building under construction

of human affairs which in a grown city are taken for granted, the architect is thrown more nearly on his own resources of intellect and courage than in any other act.

Corbusier's plan for the city centre of Chandigarh is made in full confidence of pressures ultimately to come and continues the theme of separate functions for traffic and pedestrians by making the heart of it a great pedestrian piazza or *chowk*, as Indians would say; a cross enlarged into a large square at the centre, and lined with shops and offices fitted into standard elements that allow of flexibility of needs and expression.

Wheeled traffic, and parking space for it, circulates in rear of it, and crosses from one quarter to another over high level roads passing through the buildings and over the pedestrian space; and development, which has started from the central square, containing the City Hall and the Post Office, will join the local High Street which bisects this sector as in others. There is no immediate attempt to develop the outer frontages of the wide main avenues that bound the sector, and thus from the beginning the city has a heart with room for it to expand in measure with its growth.

I must now turn to consider the financial structure of the undertaking, which has weathered four years of continuous building and a period of grave political crisis.

It is governed by an estimate which covers the initial project for 150,000 people on 8,919 acres of land, and makes possible a further extension to half a million people. The project contemplates a total expenditure of £12,886,385 during its first phase, and of this more than half, i.e. £6,617,213, relates to the cost of development and of civic amenities; while the balance represents the cost of government building and water supply, with recoupable items bringing the gross expenditure to £13,417,154.

Development costs are to be recovered from the sale of plots to the public, and taking into account rents paid for government buildings in the first phase, the net expenditure works out at £6,241,461.

The cost at which land is sold to the public includes everything covered by the term 'development costs'—land acquisition, roads and bridges, sewerage and drainage, electricity, dams across the river, landscaping, railway facilities, establishment charges, and a large item of civic works. This last includes as many as 35 educational and eight medical institutions in addition

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Typical small houses

to six community centres, six swimming pools, a stadium, museum and art school, library, town hall and a number of administrative offices; and within the 35 educational buildings are large colleges for men and women, four high schools and a residential school, 11 junior secondary schools, 15 nursery schools, and a polytechnic and college of physical education.

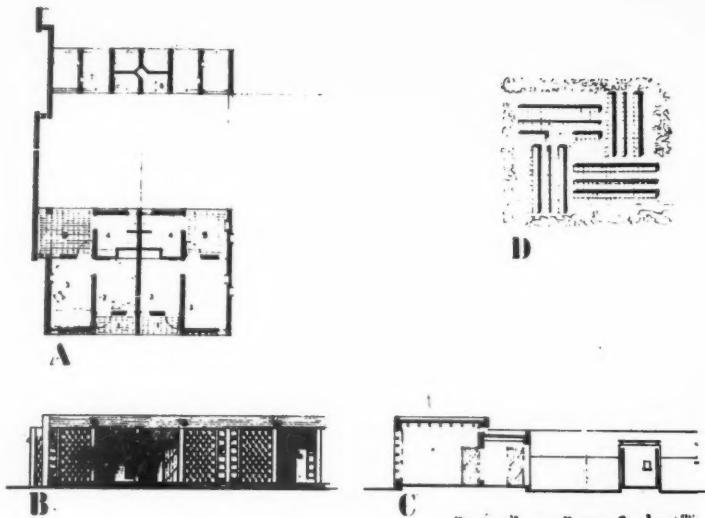
The cost of land, loaded by everything that could be held to provide the social amenities of a modern welfare state, worked out at a value of 18s. per sq. yd. for small domestic plots grading down to 6s. 7d. per sq. yd. for the largest; and at these prices were sold by allotment with preference for displaced persons, to a waiting list far exceeding the number of plots that the overworked architects and town planners could make available at any one time.

Similarly the industrial and commercial plots offered by public auction were eagerly taken up at prices nearly embarrassingly above the reserves set upon them in the estimate.

Thus the financing of nearly half of the total expenditure was advanced by the payment of the first of four annual instalments of 25 per cent of the plot values, in return for which purchasers could expect such amenities as had never before been offered to Indian citizens.

Conversely it became incumbent upon the architects to plan the city so as to realise the full value of these sales, and for the engineers and architects to keep within the already pruned estimates upon which these values depended, Chandigarh being on what might be called the 'cash and carry' plan, with loans from the central and state Government, but only a comparatively small element of direct subsidy.

The distribution of population follows the bourgeois grading of government officials and has the justification of placing ministers and judges at the head of affairs, but separates by the longest distance from the Secretariat the lower paid clerks who can least afford the cost of public transport. And conscious of this, there is a mixing of several grades of house plots in any one section, and the insertion of village groups of small plots into sectors of higher category, so that the lowest class of domestic and office worker should be close to their work. The development of the industrial area, stimulated by cheap electricity from the great Bahkra Dam, will help to correct the present distribution of population.



Small houses containing two rooms, kitchen and court with detached outbuildings

By far the most onerous task before the architects was the design of 13 categories of government house, graded from the lowest costing only £244, to the highest costing £4,875, and excluding the house for the Chief Minister.

The accommodation asked for seldom matched the estimate, and most noticeably in the lowest grade, where a long-suffering class of office messengers, drivers and the like pleaded for two rooms rather than one, and in which the critical item proved to revolve about the problem of whether or not an individual W.C. could be provided.

In fact on an area of 428 sq. ft. two rooms of about 100 sq. ft. each, a closed kitchen, a wash-room and a W.C. were provided by both M. Jeanneret and Miss Drew, together with a walled compound; and in the village group of 150-200 houses she planned for this type of house, Miss Drew was able to provide a central space, to close in the ends of her parallel pedestrian roads, provide linking end walls from block to block, along which electric supply cables were taken with a complete abolition of unsightly poles, and therefore to plant trees in freedom, and all this at a cost of 0.9 per cent of the total.

Below this again, realising the existence of classes of sweepers and refugees uncatered for, she designed houses costing only £154 all in, but with the essential amenities; and residential shops expandable into a courtyard of which 2,000 were planned and about 600 built before she left in August 1954.

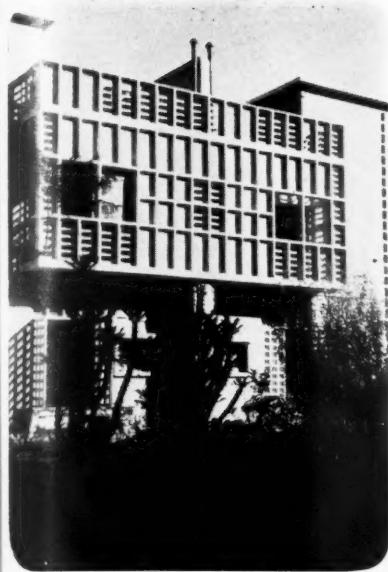
The low cost of this, and indeed of all housing, owes much to the cheapness of bricks at 30s. per thousand, made without any machinery on the periphery of the site; and to a labour force of men, women and children, underpaid, unhoused, and uncared for, turning the heart by their beauty and cheerfulness under conditions as bad as could be imagined.



A labour force of men, women and children

I have always felt that a house encloses most of the problems of architecture and have never been happy if there were not one cooking in the office. At Chandigarh we had to contend with two imponderables—the habits and customs of a Hindu population; and a climate that ranged from just above freezing point in the winter to 115° F. before the breaking of the monsoon in June; that is to say with great rigours of dry heat, and all its accompanying dust storms and hot winds in the critical period before the rains; with high humidity and heat thereafter; but with even at these times, the memory of a crisp and brilliant winter season to come. It is as an old lady in Delhi remarked to me, not one climate, but six; and it took us a long time to recognise which season governed the others.

In meetings we had with typical groups of our new clients, drawn from the various grades, we learnt the intricacies of Hindu religious observance in the domestic routine, the separation of sexes, castes and occupations; of customs of sleeping and relaxation brought about by climate; and in the first houses we designed, we gave them greater prominence than perhaps they deserved or the cost per square foot warranted.



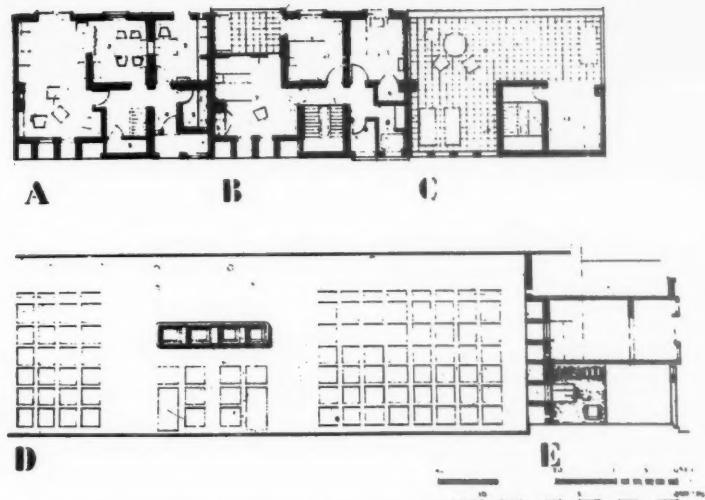
Clerks' houses made of precast concrete units

For instance, it was impressed upon us that the normal woman preferred to cook at floor level, and for the four lowest grades of houses we designed accordingly. But in those above, and mindful of the march of events and of cheap electricity to come, we designed a kitchen on the well-studied lines that have lightened the labour of countless domestic workers in the Western world, and in due course listened to the reproaches of those who had only been given exactly what we had been told they wanted.

Encouraged by this, we simplified the planning of houses thereafter and threw the additional space secured into the living-rooms and verandahs, preserving always the sleeping terrace on the roof with its *barsatti* into which the light *charpai* beds are withdrawn in the variable weather of the monsoon period.

With our band of open space in the sectors secured, we planned closely in urban formation, using terraces freely and avoiding like the plague the amorphous garden-city character that has done so much to rob our new towns in England of a sufficient contemporary character.

The technique of house building in Chandigarh relies nearly entirely on hand labour on the site and the only machines involved were lorries, an occasional concrete mixer, and some band-saws for rough carpentry. I personally came to rely more and more upon what bricks could do, and built sunbreakers, grilles and balustrades of brick, occasionally reinforced, and very often plastered; and as time went on learnt to simplify, paying less attention to the needs of cross-ventilation, which in the critically hot period is of no avail, and more to the creation of cool interiors, as large as possible, and as amply protected from the south-west sun as ingenuity and exiguous funds permitted; so that in the few of my house types that I felt really



Two-storey superintendent's house with roof terrace

responded to the gruelling conditions there were few windows and small on the exposed fronts and no openings of any size not protected by overhanging verandahs.

I have found in designing modern houses in England that northern and eastern aspects are by far the most vulnerable, warranting walls as blank as possible, with double skins and every protection conceivable; while southern and western aspects admit heat even in winter months, and may be opened up.

In Chandigarh the south-west aspect is above all vulnerable, but there is this critical period with temperatures up to 115°F., and high night temperatures, when everything is penetrated by heat above body temperature; and against this the only defence is to retreat behind massive walls or their equivalent, with every aperture closed, and if possible sealed. Only certain ground floor rooms, set well into the building, are likely to be barely tolerable, and they must be secured, or the house fails when it is most needed.

The egg-box sunbreakers in two types of house perform the function of the massive wall by collecting shade, and of course heat, but dispersing heat upward by being disconnected from the wall in rear, which again has small windows, deeply shaded, and adjustable ventilators near floor level.

In his Ministers' houses M. Jeanneret has introduced the interior courtyard in combination with verandahs on the vulnerable faces and this, where money allows it, is a soundly based solution, provided the courtyard is small and shaded.

The houses we designed were for government employees and formed only a part of the whole, though when it is realised that starting from blank paper and an empty site in January 1951 we had housed over 20,000 people in permanent houses by July 1954 and enabled the Government to function in Chandigarh in March of the same year, the effort seems considerable. And with this housing went schools, a

health centre, hotel, hostel, a government press, shops and a cinema!

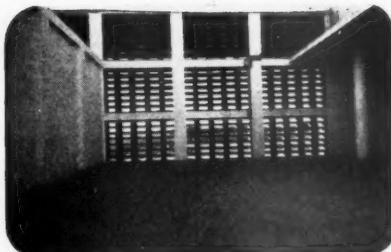
But in order to control growth we had also to frame bye-laws, to draft Acts for the control of advertisements, protection of trees, and the control of the periphery; and because we were unwilling and unable to control the design of individual buildings erected by the public, we devised a system of sector planning sheets on which were shown graphically the building lines, permissible heights, buildable areas of plots, public open spaces, scheduled trees, and controlled boundary walls, with standard design for gates.

Some frontages on important streets we controlled as to height, profile materials and set-backs, in order to protect to some extent the effects such streets would have when finally built. But further we did not wish to go, nor could go, without the aid of a large staff of inspectors in each of whom should burn an equal zeal for architecture, but in whom, despite appearances, and as we know somewhat to our cost in this country, a love of family and security quenches the immortal fire and replaces it with a care only for the letter of the law.

This work proved to be a great labour, but the public was grateful for the sure knowledge of what and what not was possible, and it was as a system more responsive than the legal wording of building bye-laws, however necessary such things are.

Of the social and educational buildings, a junior secondary school by M. Jeanneret, a large high school by Jane Drew and a large college of engineering designed by Mr. J. Chowdhury, the architect of the P.W.D., were completed by the summer of 1954. All use a reinforced concrete frame, precast concrete balustrades and sunbreakers and random stone walls built of roughly squared pebbles brought on camels from dry river beds. The English walls are coursed random, as you would expect. In my eyes the nicest and by far the best finished of these buildings is the Health

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Typical roof sleeping terrace with brickwork grille for ventilation and *barsati* on the right

Centre in Sector 22, built very simply of bricks plastered, in solid and boldly pierced walls, but with one *jeu d'esprit* in the curved and cantilevered entrance canopy.

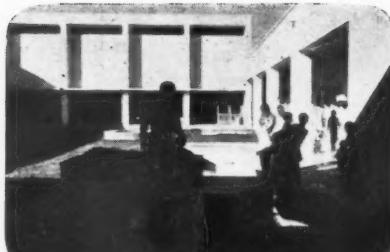
Shops were very cheaply built, sometimes by the owner as was the case with the cinema, but to the architects' working drawings and indeed with their very constant assistance. But no questions of party walls or bits of covered way and various joinings-on obstructed the shopkeepers' burning desire to keep a shop at the earliest date, and with the help of a generous cover of plaster they were rapidly completed, and are a testimony to the power of collaborative control.

With the cinema owner the collaboration was nearer a love pact; I could not have worked for a client I liked better or respected more.

This great work was done, and is being done, as the result of very great pressure and against the machinery of a Public Works Department for which I can find little good to say. In the best interests of Indian development plans this out-of-date system should be drastically reorganised; the cumbersome and ineffective checks and controls replaced by known instruments of definition and precision, such as bills of quantities, firm contracts binding all parties to the performance of specific tasks, and from these, reliable estimates; and the unfunctional hierarchy of engineer and subordinate and irresponsible architect, by the proper separation of their tasks in building, with full responsibility for each.

The lot of the Indian architect in public service is indeed unenviable, but the engineer is no less crippled by the lack of faith reposed in him by the ridiculously small powers of financial sanction, and by the tedious administration that deprives him of his power to act, and in the long run, to think. A fine body of talent and energy goes half-wasted until these reforms are carried out.

That so much was done in the time and with such an organisation is a tribute to Mr. P. L. Varma, the Chief Engineer, who more than anyone else represents the spirit of Chandigarh, since it was his faith that brought it through times of indecision to positive action. And to Mr. P. N. Thapar, I.C.S., the Administrator whose real understanding of and sympathy with architects made his hard rule bearable, even enjoyable. 'You may bring me a house design', he used to say, 'and if it is a rupee over the estimate you know you will have



View in the courtyard of a health centre

to go back and plan it away. I will not consider cost because what is in the project estimate must be kept to. But I will consider livability because that is my job; and after that architecture is your job, and we may both enjoy it.'

To our staff of Indian architects and town planners I pay the tribute due to youth and enthusiasm which in most enterprises can be a substitute for experience. These young people came to us from the Indian schools of architecture, but mainly from Delhi; and being largely unqualified they made our office a finishing school, as any good office should be.

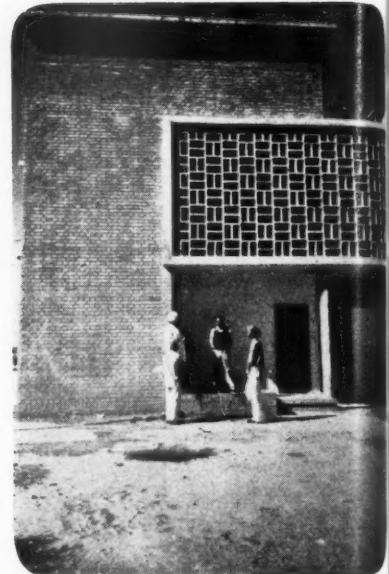
With their zest and high spirits they infected the whole undertaking; they designed their own furniture; they performed plays; and were the better architects for believing in life and enjoying it: but will be better still when India gives them the responsibilities they deserve. I mention Mr. Narinda Lamba because his especial organising ability and his loyalty to the ideas before us made our hard life possible, and he must therefore carry our thanks to his colleagues.

Our personal adventure ended with the third monsoon, but the work goes on, with the emphasis shifting from government to private building. The world has grown suspicious of five year plans, yet Chandigarh is an item of India's Five Year Plan, and if the rest of the items are pursued with the same energy, and stick as closely to their estimates, then India is really on the march.

DISCUSSION

Mr. Peter F. Sheppard, B.Arch., A.M.T.P.I. [4]: As always when someone talks in an exciting way about an exciting project, I find myself wanting to know very much more about Chandigarh than Mr. Maxwell Fry has told us. His talk was a wonderful example of how strongly an enthusiastic person can whet one's appetite for more knowledge.

I do want to say how very much impressed we are by what he has told us. In England we have been waiting for a rather long time for news of Chandigarh. Very few pictures of it had been published, and it is very exciting to see this architecture taking place in a quite different climate and in a quite different idiom from that in which the modern movement has so far had to work. I personally found the results exciting but perhaps not sufficiently Indian. I had expected to see them less influenced by the European modern movement.



Front of a superintendent's house

I should like to ask about a great many things; for example, the trees and the plants. One thing that puzzles me is the road system being a rectangular grid. It seems to me that a car moves in great circles and sweeps, and I should have imagined that the roads would be more radial, or, at any rate, converging patterns of roads might have been expected.

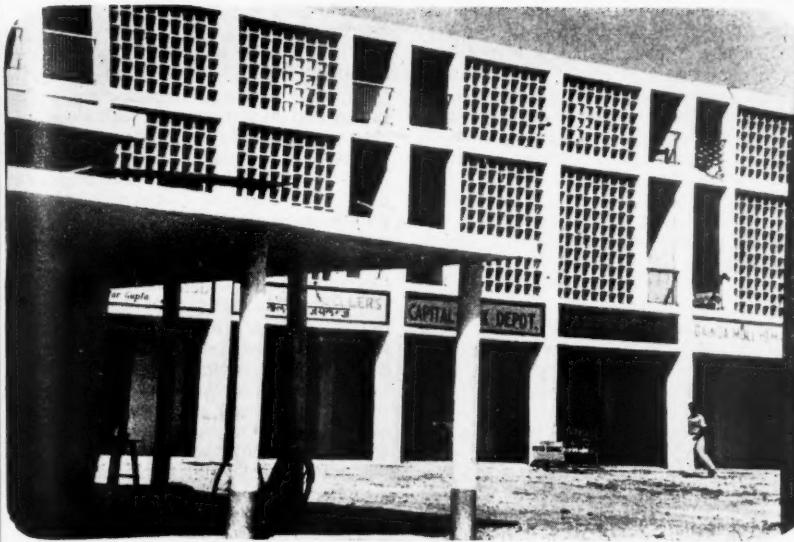
I should like to know more about the bazaar road. I cannot quite see how it works. Mr. Maxwell Fry said that it did not form a cross route, but I think it tends to form one.

I am very puzzled indeed by the planners (or perhaps it was not the planners) recommending the selling of land at Chandigarh. It seems that in this case the planners have been doing what planners always do, that is, carrying out a very economical system. Many people say that planning costs money, whereas in fact, of course, it creates value. It seems rather strange that, the land having acquired such an enormous value, it should be sold.

I should like to say how very much I have enjoyed this talk and how confidently I can move a vote of thanks to Mr. Maxwell Fry.

The Hon. Lionel Brett, M.A. [F]: I have no questions. I have nothing but praise.

When I was in Delhi a year ago I had one free week-end, and I had to choose between going to see the Taj Mahal and going to see Chandigarh. It would be dishonest to pretend that I regretted having chosen the Taj Mahal, but for every one person who has asked me what I thought of the Taj Mahal, ten persons have asked me what I thought of Chandigarh. I have always regretted having had to make that choice, and so it has been a particular pleasure to me to have this opportunity of hearing and seeing something of what I missed.



A typical shopping centre. Control of the design is explained in the text

Indians often say that they have lost the art of living in cities. Of course, they are not alone in that, but it is true that their big cities are now really nothing more than frighteningly overgrown villages, with all the squalor or even more than the squalor of agricultural life and none of its relieving contact with Nature. It is the state which we were in a hundred years ago. It has all the Dickensian horror of our cities in the 19th century, and the little efforts which have been made to remedy it are just as pathetic as the disease itself and, in some ways, worse than the disease itself. The Indians build what they call 'tenements', which are generally two-storey blocks of one-room or two-room dwellings, arranged not in sensible straight lines, as in the pictures that we have seen this evening, but generally in an elaborate 'Union Jack' pattern, with masses of unwanted space. The cure in fact is more depressing than the disease. These tenements have the same sort of depressing effect as our 19th-century bye-law housing had. In fact, the only enlightened housing outside Chandigarh is being done by enlightened industrialists. Finally, to complete the parallel with our own 19th-century story, we have in India Gandhi's teaching, with its emphasis on 'back to the hand-loom' and the Garden City. It is against that background, a really hopeless background, that one realises the incredible achievement of this city of Chandigarh. I think one sees in it our Western rationalism and humanism being brought to bear on an ancient problem in a creative way. I do not know whether you noticed that the plan of the city takes the form of a human body, with a head, heart and limbs. I think that is symbolic, and it is interesting to compare it with New Delhi, which symbolises nothing but power and authority.

I mentioned humanism just now, and I should like to take, as a small example of it, Mr. Maxwell Fry's tribute to the men,

women and children who are actually building the city of Chandigarh. I think that anyone who knows India at all will share his affection for its people.

I have tried to say something to put this achievement against its background. It is only against the setting of India, with its fantastically big physical problems, that one can really appreciate this achievement. Mr. Maxwell Fry's modesty has really given no clue to it. Chandigarh has been built in three years, at three times the speed at which our own new towns are being built.

I regard it as an honour to second this vote of thanks.

Mr. Raglan Squire [F]: I also was in India about a year ago, and I also had to make the choice between spending a week-end in seeing the Taj Mahal and spending it in seeing Chandigarh. I chose to go to Chandigarh. It was a heartrending choice, but I felt that I should choose the new rather than the old.

There are two things that I remember very clearly from my visit to Chandigarh.

The first is a story that a member of Hindustan Construction told us about the excavations for one of the large buildings, which I think was 180 ft. long. I may have over-simplified or over-dramatised this story, but it is the story as it was told to me, and it emphasises Mr. Maxwell Fry's point about using local labour for housing purposes. The story was that there was a great deal of earth-moving equipment available at Chandigarh. It had been sent to India by the Americans and was supposed to be a great contribution to the economy of the country. An experiment was made on the excavation for this building; at one end of the excavation there was a 14-yd. scraper and bulldozer and at the other end there were 750 families with 750 donkeys, the idea being to see which got to the middle first. The father of each family dug out the soil and loaded it on to the donkey, a child

drove the donkey up the hill, and the mother unloaded the soil on to the top of one of the pretty little spoil heaps. The 14-yd. scraper and the 750 families reached the middle of the excavation at the same time, but the 750 families were cheaper than the 14-yd. scraper. So much for earth-moving equipment.

The only other point that I want to mention is that I did feel very strongly, although my visit was a very short one, the terrific enthusiasm at Chandigarh, and I am absolutely convinced that three-quarters of the success of the project was due to the enthusiasm of Mr. Maxwell Fry, Miss Jane Drew and the other architects who were working there.

Mr. John Page (Building Research Station): I found Mr. Maxwell Fry's talk extremely stimulating. I have not been to Chandigarh but I spent three years in India during the war, and I should very much like to go back to that great country.

I feel it would be a pity if, in considering Chandigarh, one did not look in a little more detail at some of the mistakes that occurred there, because all over the world there is a great development and interest in building in the tropics, and I am sure that many people here will have a great deal to do with such building.

There are, in my opinion, two main problems involved in approaching this subject. First, there is the sociological problem, and I was a little surprised to hear Mr. Maxwell Fry say that it had not been discovered until quite late in the project that there was a class of Indians who were poorer than the peons. In actual fact what is happening at Chandigarh at this moment is that the impoverished classes, including many of the people engaged in the building work, are living some four or five miles from the centre of the town, because there was no site provided for them on which they could erect their houses reasonably close to the centre of the town. This is a problem which occurs all over the world when there is a change from a subsistence economy to a more Western type of economy; there is a terrific jump in the value of the houses as between the mud houses and the houses that can be erected by modern technology. This problem is one that should be faced realistically, but very often it has not been faced realistically and it has created a great many other problems.

I should like to support Mr. Shepheard's remark that perhaps the architecture at Chandigarh is not sufficiently Indian. The expression 'modern movement' is an abomination to me. I should like to see any study start from a study of the native tradition, the simple houses that we saw at the beginning, and I should like that tradition to be related to what follows after. If you look at some of the buildings from the point of view of controlling sunshine and the various technical points, you will see that if there had been a deeper study of the native tradition which existed before, a better understanding of Indian architecture would have emerged and a greater achievement would have resulted.

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JOURNAL

Mr. H. A. N. Medd, O.B.E. [F]: Mr. Maxwell Fry's interesting talk has raised, as Mr. Shepheard said, all sorts of interesting points about which we cannot ask him now. Having spent many years in the building of New Delhi, where I was employed for a long time, I can say that we had to deal there with many of the problems which Mr. Maxwell Fry has mentioned.

I should like to ask whether Chandigarh was designed as an all-the-year-round capital, because recently, since Mr. Maxwell Fry returned from India, I read in the Indian Press that the taking up of sites by private people had been somewhat disappointing, one of the reasons for this being that the East Punjab Government, which used to be in Lahore and in Simla as a migratory Government and since partition has always been in Simla, was proposing to take a considerable proportion of its offices up to Simla every hot-weather, and that was a source of dismay to the people who had bought sites for their own occupation at Chandigarh.

I should also like to ask Mr. Maxwell Fry whether there is a separate irrigation water supply at Chandigarh. We had one in Delhi, and what makes Delhi different from most Indian cities is that the grass, where there is grass, is more or less green all the year round. Grass is not a natural product of cultivated ground in India.

The only other point which there is time for me to mention now is the question of the roofs of the buildings at Chandigarh. What is the structure of the roofs? We saw some small houses in section and we saw the remarkable roof of the High Court, which is abnormal and special. What is the type of roof in the case of the ordinary housing, and what thought was given to it from the point of view of thermal insulation?

Mr. Jack Godfrey-Gilbert [A]: There are two questions that I should like to ask Mr. Maxwell Fry. The first one follows on Mr. Shepheard's point about selling the land at Chandigarh. I should like to know whether the land was sold freehold or leasehold, and, if it was sold leasehold, I should like to know what kind of control the Government has in administering a particular neighbourhood. Also, is it going to be possible to maintain a certain standard of health and cleanliness inside the small houses? I wish that Mr. Maxwell Fry had had time to tell us more about the finishes inside the houses. I should also like to ask what kind of fuel is available for cooking? Is cooking done by electricity?

Mr. Seton Morris [F]: I should like to ask one question, following on Mr. Godfrey-Gilbert's remarks about control. Would Mr. Maxwell Fry tell us what control is envisaged for the future design of buildings? Will there be control in order to keep the same pattern and form of private and other buildings, or will there be buildings in the Indian tradition, such as some people would like to see?

Mr. Maxwell Fry: Corbusier's answer to Mr. Shepheard's question why the roads

were straight would be: 'A flat site—why curves?' You will find that there is a very small curve there, which was a tribute to the first planner.

The bazaar road is less straight than it appeared to be on the drawing. There is a good deal of wiggle about it, and there is a break where it passes over the fast traffic road. The system could be invalidated by an energetic young man in a sports car, but the point is that it is so planned as to make that less possible than it would be elsewhere.

The grass in Chandigarh has a fair chance of being green. Provision is being made for the two river valleys to be dammed, and that will create a square mile of water at the head, on the right of the Capitol. That will be a source of irrigation water flowing down the 1 in 100 slope, which is fairly constant throughout the town.

With regard to the sale of land, Chandigarh is a cash-and-carry town, and that was a decision made by the Cabinet. We urged that they should recoup on the increased value which would be likely to flow from planning and that land should be sold leasehold, but so great was the need for the necessary cash to carry out the project estimate that the decision was made to sell land freehold and to part with the benefits. That was very sad, but there was nothing we could do about it.

I liked Mr. Brett's references very much. The urban problem in India is one that is going to be very difficult indeed to solve, owing to poverty and very high pressure, but the best industrialists and the best people in the Government are going to make a very good fight to turn Indian urbanism into something better than it is now. This is a fight which has to be waged all over the world.

Earth-moving by machine in India does not pay as it does in West Africa, where we used machines in 1947. In India it still does not pay, and, as Mr. Squire said, the families and their donkeys are cheaper.

Mr. Page's point that we neglected the lowest-paid people is quite true. The fact is that when we got on to the job we were faced with the project estimate, which was contained in a large volume that had to be our Bible, and for a considerable time we had our noses right down to the grindstone. When we began to move about we realised that there were vast masses of people who were not included in the project estimate, and we tried to make provision for them, but in a certain sense we failed. There was no economy upon which we could do it, even with the smallest house.

I can satisfy Mr. Medd on the question of Chandigarh being an all-the-year capital. I have heard nothing to the contrary, and the fact that the judges have come to Chandigarh rather proves it. The great High Court will be functioning there in winter and summer. It is true that the War Department, for instance, has moved up into some of the premises vacated by the Punjab Government in Simla, and there will in fact always be a Simla in India, but it is not the intention of the Punjab Govern-

ment to shift its quarters when the weather becomes hot.

With regard to roof structures, we accepted, as I said, a good deal of what we found at Chandigarh, because we had to do so and had to get on with the work. Some of the roofs are made of brick and concrete. A sub-structure is made and covered with mud; that is made beautifully level, and then the bricks are laid, the reinforcing rods put in and the concrete laid, and we finish up with 3 or 4 inches of puddled mud, and on top of that we sometimes put an inch and a half of brick. The whole thing makes a roof which leaks in the monsoon but stops leaking as soon as the monsoon is over. We also built rather heavy concrete roofs.

With regard to the question of control, we did take quite elaborate measures to control, so far as we were able to do so, the appearance of the work carried out by the public. We could not exercise architectural control in detail over the designs produced by private persons. One cannot control architecture from the outside inwards, and the Council of this Institute has come to firm conclusions on that point. One cannot control architecture without a very big inspectorate, officials and so on, and we have too many of them in this country, all keen on art and everything else, but following in the end the letter of the law and not producing architecture. Beyond our sector planning sheet we could go no further with the general mass of the public, because we had no means of carrying out control, not having a sufficient staff. Along the bazaar roads we imposed an absolute architectural control as to volume, height, material, projection and so on, and for the city centre Corbusier designed a flexible façade with a very flexible unit, which allowed shopkeepers a great deal of liberty while still maintaining a feeling of rhythm. Therefore wherever it was possible to exercise architectural control we did so. We relaxed it where we knew we could not do any better, and our hope was that the large mass of housing and the building that we did for the Government would affect the rest. Further than that we could not go.

With regard to fuel for cooking, our plans are based on the fact that the great Bakha Nangal scheme, about 70 miles away, will produce electricity cheaply enough for cooking in time to come, and at the moment the people use small coal and coke very economically in the small type of cooking fire that they make on the top of concrete slabs. Brazier cooking is also done to a considerable extent. Provision is made for fires in the living-rooms, because in Chandigarh the temperature is very low in winter, almost down to freezing point. There is cold, brilliant, lovely weather in the winter, and it gradually heats up, until before the monsoon breaks it is about 115° and over 100° at night, and life is very difficult indeed; then the monsoon comes and the dry heat is changed to wet heat, shading off gradually, and then there comes the lovely winter of about five months.

The Royal Gold Medal for Architecture 1955

HER MAJESTY THE QUEEN, on the recommendation of the Royal Institute of British Architects, has awarded the Royal Gold Medal for Architecture for 1955 to John Murray Easton [F].

Partner since 1919 with Howard Robertson (now Sir Howard Robertson and himself a Royal Gold Medallist), Mr. Easton has designed many public, commercial and hospital buildings; outstanding in his work are many buildings for Cambridge University. He has had a distinguished career of service on councils and committees on behalf of his profession. In 1929 the firm of Easton and Robertson was amalgamated with that of Stanley Hall, an association that continued until the latter's death in 1940 during his term as President of the R.I.B.A.

Murray Easton was born in Aberdeen in 1889. He received architectural training partly by pupilage and partly at schools in Aberdeen and London and afterwards by working for (among others) a French architect in London and a London architect in France. In the first World War he was wounded at Ypres in October 1914 while serving with the London Scottish.

In the early 'twenties Murray Easton acted as architectural Editor of the *BUILDING NEWS* until its union with the *ARCHITECT* and at this time and later wrote many articles, including a description of Clare College, Cambridge, for the volumes which were published to commemorate its sex-centenary.

In 1929 he was awarded the Godwin and Wimperis Bursary of the R.I.B.A. and as a result of travel and research produced a report on 'Modern Health Centres in Europe'. Before and since that time he visited many countries including the U.S.A. and Canada, and more recently Hong Kong and Malaya with incidental visits to India, Burma and Siam.

He was President of the Architectural Association in 1939 and a Vice-President of the Royal Institute from 1945 to 1947 and, with two breaks, has been on the Council since 1939. Since the early 'twenties he has served on various committees of the Council including the Finance and House and the Hospitals Committees.

In 1928 Easton and Robertson won the London Architecture Bronze Medal for the new hall of the Royal Horticultural Society in Westminster and again in 1936 the firm (then Stanley Hall & Easton and Robertson) received a similar award in respect of the Nurses' Home of The Hospital for Sick Children, which was Stanley Hall's especial care.

In the following year, they were awarded the R.I.B.A. Architecture Bronze Medal for Essex, Cambridge and Hertfordshire for the new buildings for Gonville and Caius College, Cambridge. Murray Easton's connection with Cambridge goes back to 1930 and continues to the present day. His largest work there—the new chemistry laboratories—is still in course of construction and with one of his partners he



John Murray Easton [F], Royal Gold Medallist 1955

is now planning a new Addenbrooke's Hospital.

Recently the Worshipful Company of Tylers and Bricklayers presented him with their Annual Gold Medal which is awarded for the best brick building erected in London within the last three years. This was in respect of the new students' hostel of St. Bartholomew's Medical School.

As well as Addenbrooke's Hospital and with the same partner he is planning a new hospital for Kowloon (Hong Kong) and a virtually new University of Malaya. With another partner he is designing a large office block in the City and one in the country.

Among the works of the firm, the

following are those with whose design Murray Easton was particularly concerned:

Public: Royal Horticultural Society's New Hall, Westminster (awarded London Architecture Bronze Medal), Metropolitan Water Board Laboratories, London. London Passenger Transport Board Station, Loughton.

Commercial: 52, Cornhill, E.C. 6, Lothbury, E.C. Royal Bank of Canada. Oxford University Press Warehouse, Neasden. Factory and Offices at Morden. Pitt Press, Cambridge (remodelling). Reconstructed showrooms for Stunzi Silks, London.

Recreational: Swimming pool, etc., at Bourville for Messrs. Cadbury Bros. Ltd. Sadlers Wells Theatre, alterations and

additions. St. John's College, Cambridge, squash courts, etc. Anglo-American Allies Club, Piccadilly.

Educational: Zoological laboratories, Cambridge. School of Geography, Cambridge. Old Library, remodelling as Headquarters for the University of Cambridge. School of Anatomy, Cambridge. School of Psychology, Cambridge. Engineering laboratories, Cambridge. Chemistry laboratories, Cambridge. Gonville and Caius College, Cambridge, (fellows' and undergraduates' Sets) (awarded Bronze Medal).

Various works for Peterhouse, Pembroke and Clare Colleges, Cambridge. The Queen's University of Belfast, Institute of Clinical Science. St. Bartholomew's Hospital Medical College, new hostel for students. (Awarded Gold Medal of The Worshipful Company of Tylers and Bricklayers) and new laboratories. Marine Biological Association Laboratories, Plymouth. New hall, convent school, Essex, Restoration of 16th-century building.

Hospitals: York Clinic, Guy's Hospital (in collaboration with W. J. Walford). New

children's hospital, Dublin (in conjunction with Robinson, Keefe & Devane). New Limerick regional hospital (in conjunction with Patrick Sheahan). Royal Victoria Hospital, Belfast, new nurses' home.

Domestic Work: Luckington Court, Wiltshire, additions, etc. Watford Court, Northamptonshire, remodelling. Prestatyn, Golf Hotel, swimming pool, pavilion, and bathing station. Bodnant, North Wales, remodelling and garden architecture. Mottisfont Abbey, Hampshire, remodelling. Houses in Cambridge, North Wales, etc.



Art History and Contemporary Art

By Basil Taylor, Librarian, Royal College of Art

Read before the R.I.B.A. on 7 December 1954

WHEN I WAS WORKING some years ago at the B.B.C., at the time when the Third Programme was beginning, I had the task of consulting a number of people on the sort of talks that should be broadcast on the visual arts. These talks were to be my own responsibility, and I remember very well going to see a very distinguished architectural journalist, in order to gain the benefit of his experience in a field of which I knew very little. I also recall very well that the first warning he gave me was of the extreme difficulties and dangers connected with the practice of architectural criticism. He warned me that there was perhaps no artistic profession in which the practice of criticism was to be entered upon with more care and with more sense of responsibility. I was very much reminded of this fact a year or so ago, when I broadcast a number of talks in the Third Programme, parts of which were concerned with the history and the present conditions of architecture. It was then indeed that I discovered how dangerous a field I had entered upon. It is therefore very gratifying to me to know that I did not on that occasion so firmly put my foot in it as to be banished for ever from the halls of the Royal Institute of British Architects.

I am, however, very much oppressed this evening by a sense of this responsibility, and I have therefore carefully called my paper 'Art History and Contemporary Art', not 'Art History and Contemporary Architecture'. I hope that you will forgive any references that I may make, in the course of this lecture, to architecture rather than to art in general.

I want to consider whether in point of fact the practice of an historical method is useful in relation to the practice of art; whether in point of fact the art historians and the artists are two separate bodies of people working together to the same end and whether they are in fact mutually self-supporting and mutually self-encouraging, or whether, on the other hand, the historical attitude or the historical approach is perhaps at variance with the practice of art and indeed a danger to its continuation.

When the nature of contemporary art is considered in the correspondence columns of the Press, it very often happens that someone reminds us that we live in a scientific and industrial world and that these two things—the practice of art and a world dominated by scientific thinking, by technology, by industrialisation—are totally incompatible. On the other hand, as was evidenced in a statement made by the Archbishop of Canterbury a day or two ago in connection with high building in London, it is history which is brought to support the aesthetic view and it is history which is brought to support the artist against the scientist, the technologist and the engineer. Science and history were the two forces leading to the modern attitude and were the fundamental forces which in the 19th century were to destroy man's confidence and were to create the spirit of relativism in which we at present exist. As I have already suggested, it is more often than not today the scientific assault rather than the historical one which is considered to be a danger to the artist. I want to suggest this evening that that is in fact the reverse of the truth and that it is historical relativism, rather than the work of the scientist, which challenges the work of the artist in any medium.

I think that the key point in this development of historical danger was the moment when man ceased to regard history and historical precedents as his tool, as the instrument with which he worked and which he bound to his use, and when history became in point of fact his master. As soon as not only the artist but indeed anyone believes that his conduct must be bound by historical precedent, that is the moment of danger.

One of the most obvious characteristics of modern painting, of modern architecture and of all forms of modern art is that a great deal of it is essentially an historical art. It is in some sense a commentary upon and an interpretation of a revival of historical precedents. There is, I believe, no better example of that than the figure of Picasso, a great deal of whose work has

been a re-interpretation of the whole variety of historical precedents.

This kind of historical artistic attitude has a far longer history than that of the last 150 years. It dates back to the Renaissance, but the Renaissance artist, unlike the modern artist, was in command of the historical precedent; the historical precedent was something which he continually and consciously bound to his use.

How recent the more modern view of the value of history is one can see very well by looking at the vast index of the complete works of Ruskin. There one will find, in spite of Ruskin's vital concern and enthusiasm for historical precedents, a very limited number of historical precedents. The field of his own inquiry, the field of historical knowledge upon which his own criticism and his own enquiry depended, was an exceptionally limited one, viewed from our modern position. It was essentially the precedents which were afforded to him by classical art, the art of classical Greece and Rome, the Christian art of the Middle Ages and the Western art of the Renaissance. To that in more recent times has been added a range of historical and international precedents on a vast scale, a scale which Ruskin himself certainly could not have imagined and on a scale which he would not, I believe, have used or bowed to.

It is therefore this change—not only the change from a time when the historical precedents were limited in their scope and variety, but the change to an attitude when all historical precedents may be considered to be equally valid, when there is a reluctance to deny the validity of almost any historical example—that constitutes the revolutionary change in the artistic attitude within our own period. I want this evening to consider some of the results and, I think, some of the dangers which have come from this fundamental and most vitally important revolution in ideas.

It would be interesting to analyse critically the method, the profession, the activity of the art historian as such. I do not wish this evening to embark upon that

particular kind of analysis. The shortcomings of the art historian's view of art are not part of what I want to consider. I wish to say only this, that it seems to me that the study of art history is still in a very extreme sense in its infancy, that the methods which it employs are still comparatively primitive, and that it is even now too early to make a sweeping condemnation of the status of art history as a study and the status of art history in its relationship to the practice of art. On the other hand, if art historical study is, as I believe, still in its infancy, if it has not begun to touch upon what I believe to be the most fundamental aspect of the artist's activity—that is to say, what motivates the work which he produces—I think that it is still important to make a clear distinction between the field within which the art historian operates and the field within which the artist as such operates, whether he be architect, painter or writer, because that, I think, is the very heart of the matter.

The historical method and the artistic method are, I believe, absolutely distinct, absolutely different, absolutely incompatible. The art historical method and the art historical study, if it is to deserve the status of an intellectual discipline, must at least aspire to some degree of objectivity; and it is in the nature of the artist's activity that he should not aspire to such a condition of objectivity, that he should not be open to doubt, that he should not be open to a continual change of attitude, that he should not be open to a continual reconsideration of his whole position from day to day and from week to week. The artist must be concerned with making the most positive affirmations which are not to be supported by any kind of scholastic discipline, whereas the student of art history, if he is to practise his method conscientiously, must be continually working under such restriction and under such influence.

I think that the main confusion which has arisen as a consequence of the changed attitude to historical precedents which has been encouraged by a study of the history of art lies within the field of the concept of style. I have already suggested that the change which took place can be summed up in terms of a change from an attitude of conscious, deliberate and confident selection of historical precedents to a feeling of uncertainty and an over-liberal acceptance of any historical precedents which may come along. The nature of the art historian's activity must depend upon constructing some kind of a structure of ideas, some sort of a net, some sort of a framework, in which the facts of the past can be entrapped, ensnared and expressed; and the most influential framework which has been imposed upon the art of the past has been the stylistic one, the division of the past according to stylistic differences, stylistic identifications. We owe not only to the art historian but to the historical method in general, more than to anything else, this conception of a style.

Most of the disputes (and I suppose that there is no field in which this operates more

powerfully than the field of architecture) which confuse and beset us in these times revolve about the question of style; and it is the art historian who is, I believe, continually assisting in that confusion by making closer, more refined, perhaps more accurate and, from many points of view, many more interesting discriminations between one style and another, one element of style and the next. Therefore if the contemporary artist approaches his problem through the eyes of the historian, through the eyes of history, in these days he is made unnaturally aware of this imposed and artificial problem.

Contingent upon the idea of style is the conception of a modern style, the idea, which historical inquiry and historical research encourage, that the artist must be a modern artist and that to be a modern artist is in fact to make some kind of deliberate intellectual analysis of the nature of the conditions under which he works, and then to derive from such a study and from such inquiry a method of working, a way of working, an attitude to the practice of his art. This erection of that particular idea of modernity, this dogma of the modern style, has been, like the idea of style at all, one of the most disruptive and dangerous habits of mind of recent times. As soon as the modern style is conceived and projected in that kind of way the artist's activity in itself is falsified and is changed into an activity which comes to resemble very much more the activity of the historian than the activity of the artist.

Moreover, associated with the idea of a specifically modern style is the curious belief that a work of art can be ultimately and fully evaluated and appreciated only by posterity, the belief that it is only after the passage of time that artistic values of any particular period may be ultimately discerned. That view, I think, also depends upon the historical outlook, yet that view also I believe to be essentially false. I think the nature of its falsity becomes more clear if, instead of looking forward towards an evaluation of what is made in our own period, we look backwards from our present position and think of the way in which we tend to evaluate the work of the past. If we seriously criticise our own attitude towards a mediaeval cathedral, towards an African sculpture, towards the Parthenon, towards an historical work of any kind, the limitation of our experience of that work is all too apparent. However much the historian may be able to inform us about the nature of the conditions which produced such works, we are continually aware of the unbridgeable gulf between ourselves and the object in question, and there is, I think, no reason to believe that a man of the future will be able to understand a work of our own time any better than we are able to understand works which are historical to us.

I should like to pass on now to consider the relationship between the art historical view and the view of the critic. The historical view, the study of the history of art, has grown up side by side with the develop-

ment of art criticism, the development of the critical view, and, just as the historical view has suffered in recent times a revolutionary and dangerous change, so I think also under the influence of history the critical view and the practice of criticism are at this moment, under our eyes, suffering a revolutionary and a dangerous change.

I do not propose to consider at all the value, the purpose, the necessity or the lack of value of art criticism, but, accepting its existence and accepting that it has some value and some use, I suggest that it has a value in so far as the critic remains within his own field, that it is valuable just so far as the critic remains a critic and does not become subject to the discipline and controls of the historian. The critic, like the artist, must keep himself clear from the temptations of the historical attitude. I think that there is a danger today of our regarding the study of art history as the best preliminary and the best training for the criticism of art. I certainly do not think that there is any possibility of a formal training in criticism, but I am equally certain that the study of art history is not by any means the best introduction to critical writing, for very much the same reason as I think that a conventional study of art history must not be an important part, or indeed any part at all, of the training of the artist.

The art historian, if he is to preserve the discipline of his study and the discipline of his research, must not be too much influenced, or at least must not be consciously influenced, by aesthetic judgements. He must keep his own preferences and tastes on a leash. To him the work of trivial aesthetic importance may be of considerable historical significance. I state that as a fact, and I do not criticise it.

I am very worried when I read in *The History of English Painting* that Hogarth's portrait of his servants is not part of the history of English painting. I think we are all worried by that kind of statement of values which runs so positively counter to our natural intuitions and to our natural response; but if that is a cause of scepticism in our attitude towards the art historical method, it must be, I think, a cause of great danger to anyone practising the criticism of art. It is only too easy to erect on the basis of art historical method a view of art which bears very little relationship to its human, its aesthetic, its expressive value. How often do we read today extremely convincing articles based upon an historical discipline and upon the method of the art historian, but ultimately invalidated by the fact that the work itself as such does not in the least convince us of its importance. I suggest that for the art critic to be able to lead a double life and to be able to approach works of art from a point of view which lies quite outside that of his professional training and professional study is the sure way of ultimately devaluing the critical point.

I have been suggesting so far that the art historical method and the method of the artist himself are two distinct things. I believe that in point of fact the historical

method, the historical view, is far more remote from the artist's activity than is the method or way of thinking of the scientist. That must ultimately bring us to consider what should be the place of the study of art history in the formal training of the painter or the architect or indeed of any artist. The danger that I suggest is that of being mesmerised by the variety of historical precedents with which we are today presented. The danger for the student is that he should be asked far too early in his career to cope and deal with the wealth of historical example which he cannot escape being presented with. How are we to counter—as I believe we must counter—this influence? Are we to attempt to teach the history of art in schools of art and, if so, how should it be done?

I believe that in a school of art (and I feel that the same is probably true of architecture also) it is positively dangerous to add a course of art historical study, similar to that which the student of art history would undergo in a university or in some art historical institute of one kind or another, to the technical and aesthetic training which is the larger part of the student's activity. I think that that has the danger not only of creating doubt and a lack of conviction, a lack of certainty, at a time when some kind of stability of attitude is most important, but also of encouraging the student to consider an alternative career; and it is most dangerous for the painter or the sculptor or the designer to pass through his period of training thinking partly in terms of a career as a painter or as a sculptor or as a designer, but also having at the back of his mind the thought: 'Well, I can always become an art historian or an art critic if it does not work out like that.'

I believe that the study of art history is an essential part of the student's training, but that it should be regarded most seriously in relation to each individual student's particular need at any particular time. To give a more concrete example of the kind of historical training which I believe to be of use and of value, there will be moments from day to day and from week to week in any student's progress when the most valuable kind of advice can be gained from the art object, from the painting, from the sculpture (it may be of his own time or it may be of the past); and it is at that moment, when a particular dilemma or a particular difficulty is reached and when the answer can be provided most properly by a consideration of some other example, that the art historical precedent should be offered.

My own ideal of the art historian within the art school is someone who is there at hand to offer that kind of assistance when it is individually needed at that particular moment, and not someone who exists there in his own right, conducting a small department of art historical study only generally related to the day-to-day problem of the individual student. I am sure that anyone who has had to concern himself with the study of the practice of art will know how delicate and how subtle a progress it is,

and the mere imposition in a general way of the historical study by any course of lectures, by any general study ending in examination, is only too likely to confuse the student and to offer the very greatest danger to the student's progress and progression.

I have tried in what I have said this evening to be as fair as I can to the art historical method, but I should not be doing justice to my own convictions if I did not end by being a little more radical than I have already been and if I did not state more clearly and more directly what seems to me to be the danger of the historical attitude. I think I can do that best by referring to a book published nearly 30 years ago, which was concerned very largely with the influence of the historical view, the time view, and quoting at least one passage from it. I refer to Wyndham Lewis's book, *Time and Western Man*. It is a book which has for long been out of print but which I think deserves and needs more than almost any other book, in present circumstances, to be republished and widely read. In the course of this book Lewis wrote a chapter in which he described the historical activity as being the chief means of expression of that diffusing time conception which it was the purpose of the whole book to analyse and to attack.

In that chapter he wrote the following sentences: 'The historical writer in every case is distracting people from a living present which becomes dead as the mind withdraws into a past into which they have gone to live. The intelligence to which this method is natural is the very opposite of the creative activity.' The painter van Gogh once said that he considered it an impossibility for a religious subject to be presented in terms of impressionism. In his book, *Time and Western Man*, Lewis treats of impressionism as one of the most obvious examples of the time view with which he is concerned; and I think that the historical view, as distinct from the time view, operates upon the world and upon the artist's activity rather as the impressionist method operates upon the solid objects of the material world. It tends to diffuse them, to place them in a kind of vaporous flux. It diffuses them in the way that the landscape in a painting by Claude diffuses the impact of the small figures in some allegory which is the occasion of the work. It is the great danger of the historical view and, in consequence, of the influence of the art historical activity that it diffuses the creativeness of the artist as such. It creates a world of relativism. It creates various kinds of uncertainty which are, I believe, inimical to the artist's real work.

I should like to end with a story which is, I think, an ideal parable of this situation and which is a true story. This took place not so many years ago in New York. Two brothers lived in a terrace house in Harlem; one of them had practised for years as a solicitor in New York and the other, who was blind, had earned his living by giving piano lessons. When the brother who was a solicitor reached the age of retirement he retired into this house, and for several

months the people who were accustomed to see him and his brother moving about in the streets or to see them through the windows saw them no more. Occasionally at night time they noticed one or the other just emerging from the cellar of the building, engaged in some activity or other, but for several months there was no real activity in the place. Finally, after weeks in which no sign of life had appeared, some of the neighbours called in the police and suggested that they had better investigate what was going on. The police tried to open the front door and found that, although the handle would turn, they could not push in the door at all. They went to the back and to other parts of the building but found there was no way of getting in, so eventually they took more stringent measures and with the aid of ladders they finally broke in through the attic skylight. They discovered that the whole house from cellar to attic was stuffed with relics, with old newspapers, with brushwood and with objects of every kind, including 17 grand pianos. Every room and every passage was almost impenetrable. In the centre of this building and in the centre of this confusion they discovered the two men. The one who had been a solicitor had died from suffocation and the other, the blind man, had died from lack of attention and lack of food.

I believe that, as the years go by and as we ourselves accumulate unselectively this great body of historical precedent, whether we accumulate it in our minds or in our museums, whether we are guided to one place or another by the myth of historical completeness, we are in danger of destroying our own freedom of action. It is above all upon this freedom of action, upon this freedom to move, upon this sense of confidently working upon material which offers us a host of different alternatives, that the possibility of making anything, whether it be a building or a painting or a poem or a novel, ultimately depends.

DISCUSSION

Professor Basil Ward, Hon. A.R.C.A. [F]: Mr. Taylor has contributed very greatly indeed to our proceedings, and it gives me very special pleasure to propose a vote of thanks to him, not only because he is a friend and colleague but because he has made this very real contribution.

Looking back over the last 20 or 25 years, to the early days of what has been called the modern movement in England, I realise that the young men who took part in that movement did not think of themselves as modern architects in that particular sense. I say that because of what Mr. Taylor said about the modern movement and the historical process, and I believe that what he said is true today.

When I think of history generally and the history of art in particular I think of one of Lethaby's aphorisms: 'History is what is thought happened; the real thing was quite different.' That is in fact what a quite different man, Napoleon, said, 'History is a Greek legend', and when I think of that I think of what Henry Ford

said, 'History is bunk'. It is easy to dismiss Ford's remark lightly, but I think we should not in the light of modern research.

I should like to say this about the architect as compared with the fine artist, the painter and the sculptor, that the architect has the discipline of structure through which to work, so that, whilst he may be freed from historical precedent and historical method (and I agree with Mr. Taylor that he should be so freed), he should not, in my view, be freed from the discipline of structural precedent, of knowing about the history of structure.

If I myself had the opportunity, which I am afraid I shall never have, of forming a syllabus for a school of architecture, I should certainly take the course which Mr. Taylor suggested of having individual tuition (if I may put it simply) and putting into the syllabus a history of techniques, a history of structure, rather than the history of stylistic architecture.

Mr. William Townsend (Slade School of Fine Art): I am very grateful for being invited to express my thanks and, I am sure, yours also, to Mr. Taylor, because he has given us a pioneer analysis of a problem that may not seem to most of us to be very acute yet, but which I think may become quite formidable not very far ahead.

I have considered that hitherto the increasing prestige and effectiveness of the work of the art historian in this country have on the whole been beneficial and, comparing the students' debates and discussions that take place now at the Slade School with those of my own day, I feel that the art historians have managed in many cases to replace quite uninformed opinion by at any rate a few facts. I feel also that they have managed sometimes to guide those long discussions on aesthetics, which were very like the theological debates of the mediaeval schoolmen, and to relate them to actual works of art.

On the other hand, as a contemporary artist myself (I suppose I can call myself a contemporary artist in one sense), I must say that I have a profound distrust of the art historian and an extreme irritation, which I try to control, at the way in which he appears to take a whole range of works of art and deal with them rather impartially as all having some sort of value and all being worth a similar mode of analysis, whereas some of them seem to me to be masterpieces and others do not. That sort of attitude can become extremely tiresome to the artist.

I consider that the time will come when there will have to be a frontal assault on the art historian, but Mr. Taylor has said that the position of art history is at the moment in its infancy, so perhaps we can allow the art historian a little more grace and wait for a little while before we knock him out. At any rate, I hope we shall wait until the work on art history by Mr. Taylor himself, for which many of us have been waiting for a long time, has appeared before we condemn all the work of the art historian, because that will be a book of

a special character by an art historian who is able to see so acutely the dangers of his own activities.

I am sure you will agree that Mr. Taylor has given us a most fascinating insight into the complexities of the problem, which really is an important one to the artist today, and I am very happy indeed to second the vote of thanks.

Mr. G. B. Oddie [4]: I very much enjoyed Mr. Taylor's suggestion that we should stop teaching the history of art in lectures in the schools, but I think that he perhaps tended to obscure the soundness of his case by referring to a wide variety of historical precedents. There is a great deal of history, but I suggest that there is not very much precedent for our modern problems to be found in history. The architect today is faced, I think, with problems which, besides requiring him to find answers to the disposition of space suitable for the activities of people who use his buildings, give him many technical complications to sort out which no one has really had to face before. In this very technical age he has to deal with such things as adequate lighting, acoustics, and so forth, which Vanbrugh never had to worry about. No architect, I suggest, would get a second job today if he did not give these matters first priority. I think that there is no historical precedent—certainly none that can readily be found—for the solution of these complex problems. Reducing it to a rather simpler plane, I would ask: where is the precedent in history for the multi-storey blocks of flats and for the design of metal window sections? I suggest that you, Sir, would not have got very far yourself in Hertfordshire if you had looked for a precedent for the work which you are doing there.

A friend of mine who was a great admirer of Bernard Shaw wrote a sonnet on him and, accosting him one day in the Strand, took the paper out of his pocket and said: 'Sir, I have written a sonnet in honour of you.' Shaw took the paper and read the sonnet, and then he said: 'It is a very good subject but, young man, don't write any more sonnets unless you have something worth while to say.' I think that Mr. Taylor has had a very good subject and he has had something very worth while to say about it.

Mr. W. H. John Baverstock [4]: I am a new member and, on behalf of the new members present, I should like to thank Mr. Taylor for his lecture. It is the first one that we have heard here and I am sure we have all enjoyed it very much.

Mr. Taylor might like to know that I never took any history of architecture (I can confess that now that I am an Associate), so I am not at all hidebound regarding the history of architecture and I approach the subject with a completely open mind. I am a contemporary architect, and I am not tied by architectural history, because I had none.

The point is this, that in approaching my problems I approached them not only from the aesthetic angle but also from the

technical angle, which I found far more important. In other words, as Professor Ward said, this approach to techniques seems to be the approach as opposed to history, and I found that my past study of techniques was of far more importance to me than art itself, and I was not bogged down at all by the history of architecture. I could approach my problems direct with techniques regarding the way in which buildings should be constructed, and at the same time with freedom of thought. I could sketch something feeling that it might be part of a Georgian façade and ask myself whether it was good or bad. At that time I did not quite know what a Georgian façade was, so I was not tied down at all.

As I wander round what is known as a contemporary artists' exhibition, I feel that so long as artists are sincere they can show their work, but what I am frightened of is that if we do adopt Mr. Taylor's attitude too wholeheartedly we shall get certain individuals such as I have seen at certain art exhibitions, with extremely long hair, who chat to me in a language which I do not understand and I am not quite certain whether they do. If we do away with a certain amount of training, I feel we shall have individuals who will put up buildings simply according to how they feel, as opposed to what their clients want or what anyone else wants, for that matter; they will simply want to express themselves. I think that is going a little too far. Let us have freedom of thought without being tied down to history, but at the same time let us keep our thoughts to a certain extent on a leash, so that we at least give our clients within reason what they want.

Mr. A. Sarch: With regard to the evaluation of the work of the contemporary artist, I think Mr. Taylor said that it was the custom always to wait for a long time before expressing an opinion on the value of an artist's work. It seems to me that this has always been the case. No one was able to appreciate Cézanne during his lifetime, nor were any of the Impressionists in France appreciated during their lifetime. Sometimes it has been almost at the end of an artist's life that he has begun to receive any credit at all for his work. I believe that dislike of acknowledging the success of a new artist is one of the causes for this lack of giving artists credit at the right time for their merits.

Mr. R. Alan Cordingley [4]: I think Mr. Taylor's assumption that the art historian cannot assist the architect in his task is incorrect; architecture is so largely a technical performance that there is all the more reason for the art historian to supply the necessary background.

Again, the efforts of the modern art historian have resulted in British architecture being evaluated in European towns, to the benefit of the Continent and ourselves. We may cite Mackintosh, until recently a neglected genius, who is now recognised as a master of international Art Nouveau. For this the art historian alone has been responsible.

I can think of no artist worth his salt who has been in the least inhibited by any art history. Our eclecticism, for which Mr. Taylor holds the art historian responsible, does not dismay the good artist; nor does prejudiced teaching influence the student. An informed enthusiasm is in itself a valuable corrective.

So we must not do away with art history; rather must we improve the standard. Modern architecture is not so firmly established in England that it can do away with the valuable support, both moral and precedential, which art history has provided.

Mr. P. Reyner Banham: Now that a good word has been said for my profession, I should like to make two observations.

I am very glad to find a fellow professional in Mr. Taylor, who feels, as I do, the dangers of indiscriminate art history teaching to those who are not going to be art historians, but I think that he exaggerates the danger. Perhaps he does not meet enough architects. If he had met more architects, he would have found that one cannot teach an architect anything. You may even have the truth in your hand and he will brush it aside and say that it does not concern him. I believe that practically everyone who is going to be an important creative artist will not be told; he knows what he wants to know and he knows what he needs, and he will not be corrupted by the introduction of an alien discipline into his training. It is only those who have too feeble an artistic talent to make something of themselves who will be led astray, and I feel that that is all right. If they are not going to be much good, then let them be led astray. Do not, in the interests of good trade unionism, become bad art historians and artists.

My second point is this. I wonder whether Mr. Taylor would except from his strictures the activities of the historian of what, in my old-fashioned way, I think of as the modern movement. It seems to me that Professor Pevsner and Professor Giedion, starting off by encountering the personalities and achievements particularly of Mies and Corbusier, set themselves to discover how these men had achieved their peculiarly creative position in modern architecture, and, in the course of their researches into the antecedents of the pioneers of the modern movement and into the history of space time, I think both have revealed a great deal of what Mr. Taylor hopes art historians will be able to produce when their profession has become fully adult; that is to say, they have thrown some light on the creative mechanisms of those who have contributed to the formation of the modern movement.

Mr. Basil Taylor: With regard to the suggestion that art historical precedents have very little influence and effect upon the contemporary architect, it may be true that to the individual architect a study of the past or a knowledge of the past has no immediate influence, but I am quite convinced that the influence of the historical attitude and indeed of art history itself

upon the world in which he lives is so very great that his own professional practice is made considerably more difficult.

I suggested at the beginning of my address that the two currents which were commonly supposed to be hostile to artistic practice were, on the one hand, the scientific attitude, and, on the other hand, the historical attitude, and I said that it seemed to me that the scientific attitude was not in the least inimical to artistic practice, but that one found time and again that the historical attitude was brought to bear upon any technological advance. Take, for instance, the question of the replanning and the rebuilding of London. Are the planners and the architects quite unmoved and quite unaffected by the weight of historical precedent and historical thinking, which would seek to impose upon them a view of how the replanning of cities and how the design of individual buildings should be conceived? Does not that historical thinking, in point of fact, have a very powerful influence indeed upon the relationships of the planners and the architects with the outside world, and is not that kind of historical precedent only too often used to try to persuade them to modify their instincts and their own way of solving the particular problems with which they are faced?

Reference has also been made to the appreciation of work within its own time. I certainly should not dispute the proposition that a very great deal of the art of the last four hundred or five hundred years was not enjoyed or well received until a later date. That does not concern me so much as the assumption of that view by the artist. I think it is a great mistake and very dangerous for the artist to think that he must act upon the belief that what he has to do is to produce something which is not going to be appreciated until some later date. I think that one very often finds this attitude adopted: 'What I need to do is not to make the kind of communication which is immediately valid and which will meet with an immediate response, because history teaches me that anyway I am not going to receive it and anyway my work will have to wait for recognition.'

Mr. Banham asked me whether I did not exclude from my strictures upon the art historian and upon the art historical method the activities and the work of certain artists, certain scholars, studying the more recent periods. I fully agree with Mr. Banham's enthusiasm for the work which Professor Pevsner and Professor Giedion have done, but, on the other hand, I see even within that the considerable danger that the work almost before it has been completed will pass through the art historical sieve and immediately be presented in terms of some sort of discipline of historical study. That is a terrifying idea, and it is to me just as terrifying as the immediate receipt of the work, almost before it is completed, into an historical collection. The notion of a museum of modern art as an institution which, even before the paint is dry, is going to fix and place the work of art within an historical sequence fills me with very con-

siderable forebodings. Just as contemporary history in the field of politics, contemporary history in the field of world affairs, seems to me rather too much like holding a peace conference in the eyes of the television cameras, so I feel that this constant creeping up of the art historian's activities upon the barely finished work does offer a really sinister prospect.

Correspondence

The Editor, R.I.B.A. Journal.

THE NEED FOR DRAUGHTSMANSHIP

DEAR SIR,—Contemporary architecture is forced on us by the present-day researches into materials and structure and the requirements of the modern world, and Professor Richardson cannot shut his eyes to this. His 18th century, which I admire very much and have studied more than most men, was in its time quite contemporary and based for design on the structural use of all known building materials.

I am, however, entirely with him when it comes to draughtsmanship and the lack of knowledge of ornament amongst the younger architects. In my young days you had to be an artist in some degree before you could think of becoming an architect. Today a class of 5th year students could not draw the detail in an enriched Georgian dado or cornice because freehand drawing and the knowledge and appreciation of form is not taught nor, I presume, considered necessary. I may be wrong, but I don't see how you can become an architect and not know how to draw.

If this position is accepted, Professor Richardson will never see any modern ornament because there are no longer any interpreter craftsmen, and the responsibility for directing and designing will have to be the architect's.

Yours faithfully,

KENNETH ANNS [P]

B.R.S. DIGEST No. 72. QUESTIONS AND ANSWERS

SIR,—I find one of these unintentionally misleading.

Most people (including some architects) falsely suppose asbestos-cement sheet material to be the same thing as 'asbestos insulation board'. It is not. Though actually non-combustible, it shatters when subjected to flame, and hence has little or no value as a fire-resistant. This should be widely known.

Yours faithfully,

EDWIN GUNN [Ret. A]

(Editor's Note.—Asbestos insulation board, which Mr. Gunn rightly points out is different from asbestos-cement sheeting (i.e. as used for roofing), is defined by B.S. 1785, Section 16. This Standard specifies the density, weight and permitted binding agents and states that the asbestos fibre content shall be not less than 50 per cent. Asbestos-cement sheeting has a relatively high Portland cement content.)



R.I.B.A. Prizes and Studentships, 1955

The Alfred Bossom Research Fellowship and £250 for Post-Graduate Research. Awarded to Mr. Hans Werner Rosenthal [A], Leicester.

The Neale Bursary: A Certificate and £125 for the Measurement of Old Buildings. Awarded to Mr. Donald William Inshall [A], Henleaze, Bristol (R.W.A. School of Architecture, Bristol).

The Hunt Bursary: A Certificate and £95 for the Study of Housing and Town Planning. Awarded to Mr. Alexander Henry Bannerman, Dip.Arch. (Abdn.), Dip.T.P. (Glasgow), Aberdeen (School of Architecture, Robert Gordon's Technical College, Aberdeen).

The Athens Bursary: £125 for Study at the British School at Athens. Awarded to Mr. Robert Ragland Meadows, A.M.T.P.I. [A], London, W.11 (School of Architecture, The Polytechnic, Regent Street, London).

The Rome Scholarship in Architecture, 1954. £400 per annum for two or three years' study and research at the British School at Rome. Offered by the R.I.B.A. and awarded by the Faculty of Architecture of the British School at Rome. Awarded to Mr. Gerald Ian Lacey, B.Arch. (L'pool) [A], Stoke Wood, Stoke Poges, Bucks. (Liverpool School of Architecture, University of Liverpool). A special Rome Scholarship of one year's duration awarded to Mr. P. S. Staughton, B.Arch. (Melbourne) (Melbourne University, School of Architecture).

The Ashpitel Prize, 1954. A prize of books, value £20, awarded to the candidate who, taking the Final Examination to qualify as an Associate, shall most highly distinguish himself among the candidates in the Final Examination of the year. Name to be announced later.

The R.I.B.A. Silver Medal and £10 in Books for Students of Schools of Architecture Recognised for Exemption from the Final Examination. A Silver Medal and books to the value of £3 6s. 8d. awarded to Mr. William Gordon Jones [Student], Roath, Cardiff (Welsh School of Architecture, The Technical College, Cardiff); to Mr. Gordon Fairlie Polson [Student], Westerton, Bearsden, Dunbartonshire (Glasgow School of Architecture); and to Mr. Neville Whittaker [Student], Barnsley, Yorks (School of Architecture, King's College, Newcastle upon Tyne).

The Banister Fletcher Silver Medal and £26 5s. 0d. for the Study of History of Architecture. The subject was 'Prefabrication Before 1830'. Not awarded.

The R.I.B.A. Rose Shipman Studentship Trust: £450 for the Study of Architecture. Awarded to Mr. Alan Reed, B.A.(Arch.) (Lond.) [A], Hampstead, London, N.W.3 (Bartlett School of Architecture, University of London).

each for the Advanced Study of Construction. Awarded to Mr. Cyril Edgar Hanley [Student], Ketley, Wellington, Shropshire (Birmingham School of Architecture); Mr. Alan James Tomlinson, Bilborough, Nottingham (School of Architecture, Nottingham College of Art); and to Mr. Peter Willis [Student], Norton, Stockton-on-Tees, Co. Durham (School of Architecture, King's College, Newcastle upon Tyne).

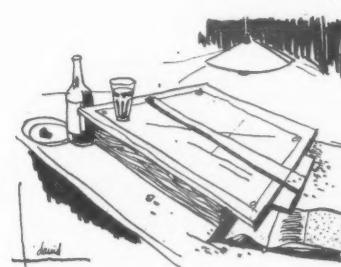
The R.I.B.A. Henry Jarvis Studentship at the School of Architecture, the Architectural Association, 1954: £50. Awarded to Mr. Ronald Arthur Diss [Student], Halstead, Essex.

The R.I.B.A. Howard Colls Travelling Studentship at the Architectural Association 1954: £40. Awarded to Mr. Peter Gray Wentworth-Sheilds, London, S.W.1.

The R.I.B.A. Donaldson Medal at the Bartlett School of Architecture, University of London, 1954. Awarded to Mr. Giles Henry Blomfield, B.A.(Arch.) (Lond.) [Student], 51 Frogner, Hampstead, N.W.3.

The R.I.B.A. Prize for Art Schools and Technical Institutions with Facilities for the Instruction of Intending Architects (£10 in Books), 1954. Awarded to Mr. John Churchill Smith, Selston, South Croydon, Surrey (Kingston School of Art).

The R.I.B.A. Prizes for Public and Secondary Schools. Total value of £10 10s. 0d. Offered for an essay of not more than 1,000 words or for sketches or scale drawings of a building or part of a building. For competition between boys and girls in public and secondary schools. Awarded as follows: (a) Essays. £2 2s. 0d. to Christopher Hewett of The College, Bishops Stortford, for his essay on St. Edmunds College Chapel, Ware. (b) Sketches. (1) £3 3s. 0d. to Geoffrey Holland of Manchester Grammar School, for his drawings of Parish Church of St. Mary, Astbury. (2) £3 3s. 0d. to A. C. Martin of Manchester Grammar School, for his drawings of Parish Church, Gawsworth. (3) £2 2s. 0d. to D. R. Everett of St. Olave's Grammar School, London, for his drawings of St. Paulinus, Crayford.



The Archibald Dawney Scholarship Trust Prizes 1954. Three Scholarships of £60

The R.I.B.A. Intermediate Design Prize: A Certificate and £100 for the Study of Contemporary Architecture in Europe. The subject was 'A Museum for Early Motor-Cars in a Midland Town'. Prize awarded to Mr. Angus Ramage Gilmour, Peebles, Scotland (School of Architecture, Edinburgh College of Art).

The Victory Scholarship: A Silver Medal and £150 for the Advancement of Architectural Education. In the year 1954-55 the sum of 100 dollars has been added to the value of the Scholarship by the generosity of Mrs. Margaret Chadwell of the United States of America. The subject was 'Exhibition Building and Offices for the Council of Industrial Design'. Awarded to Mr. John Vernon Gibberd [Student], Radlett, Herts (School of Architecture, The Polytechnic, Regent Street, London).

The R.I.B.A. Silver Medal and £75 for Measured Drawings. Awarded to Mr. Neville Whittaker [Student], Barnsley (School of Architecture, King's College, Newcastle upon Tyne). A Certificate of Honourable Mention was awarded to Mr. Ian Curry [Student], East Herrington, Nr. Sunderland (School of Architecture, King's College, Newcastle upon Tyne).

The R.I.B.A. Silver Medal and £50 for an Essay. Not awarded. A Certificate of Honourable Mention and £25 was awarded to Mr. Maurice Joseph Brown, D.A.(Edin.), A.M.T.P.I. [A], London, N.W.11 (School of Architecture, Edinburgh College of Art).

The Owen Jones Studentship: A Certificate and £250. For the improvement and cultivation of knowledge of the successful application of colour as a means of architectural expression. Not awarded. A Certificate of Honourable Mention and £10 10s. 0d. was awarded to: Mr. Antony Francis Sealey, Dip.Arch.(Birm.) [A], Redditch, Worcs. (Birmingham School of Architecture).

The Banister Fletcher Silver Medal and £26 5s. 0d. for the Study of History of Architecture. The subject was 'Prefabrication Before 1830'. Not awarded.

The R.I.B.A. Rose Shipman Studentship Trust: £450 for the Study of Architecture. Awarded to Mr. Alan Reed, B.A.(Arch.) (Lond.) [A], Hampstead, London, N.W.3 (Bartlett School of Architecture, University of London).

A Preliminary Note on the Design of Buildings for Air Conditioning in the Tropics

By J. K. Page, B.A., The Colonial Liaison Section, Building Research Station

Introduction

This paper discusses, from the point of view of the architect, some of the design factors for an air-conditioned building in the tropics. The cost of installation and running of a plant is never low, but, by suitable design of the building, the architect can help to reduce the cost of the installation. Day-to-day running also is very expensive unless suitable precautions are taken to reduce the cooling load; considerable initial expenditure on insulation, etc., may be justified to minimise the cooling load.

No technical information is given here on the design of the actual plant. It is assumed the architect will seek the advice of a qualified air-conditioning engineer. The earlier this advice is sought the better, for it will help to avoid many costly mistakes.

Here the general planning of buildings for air conditioning is considered first, then the problem of reducing the heat gain through the various components of the building, including control of air infiltration. Finally, the control of moisture and heat production indoors from kitchens, bathrooms, lighting fittings, etc., is considered.

Some of the recommendations set forward will help materially to increase the life of the plant and to reduce maintenance, but will not normally reduce the capacity of the plant the engineers will design. Fans, exhaust hoods, choice of lighting fittings, etc., can easily be altered in changes of occupancy. Consequently it would be unwise to design a plant assuming they will necessarily be there all the time. Thermal insulation, fenestration, sizes of rooms, etc., are permanent features, which can be taken into account in plant design. Even when no reduction in the size of plant results from taking measures to reduce the cooling load, the importance of all the recommendations for day-to-day economy remains, even though the prime cost of the building may be increased.

Appreciation of the fundamental difference between air conditioning in hot dry areas and hot humid areas is desirable, if sound judgement is to be exercised. In hot dry regions the outdoor air temperature is very high during the day (sometimes 115° F.), but the humidity is relatively low. Comfort is achieved mainly by lowering the temperature; thus there is a big temperature difference between indoor temperature, usually kept around 75°-80° F., and the outdoor temperature. In the hot humid regions the temperature is never exceptionally high (maximum about 90° F.) but the humidity is high. Comfort in these conditions is obtained by removing some of the water vapour by dehumidification, lowering the temperature by only a small

amount (about 10° F.). Thus in hot dry areas the emphasis should be on controlling the heat gain caused by conduction. In hot humid areas the emphasis should be on controlling entry and internal generation of moisture. In monsoon climates both types of problem may be encountered at different times of the year. This article has been written from a general standpoint, and it is left for the reader to interpret what has been said in relation to the problem of building for a particular tropical climate.

BASIC PLANNING REQUIREMENTS

Selection of site in relation to services.

The compressors of the refrigeration plant for the cooling may be driven either by electric motors or by diesel motors, etc., but an electricity supply is invariably required to drive the fan motors in the room exchangers and for other parts of the equipment. Water for cooling is required for most larger air-conditioning units and for some smaller ones too. For a large building the volume of water may be considerable, and its supply may present difficulties, particularly in undeveloped areas. Three sources of supply may be considered: (1) The local pumped main supply. (2) Local well water. (3) A nearby lake or river, or even the sea in coastal areas where fresh water is not plentiful. It is essential, therefore, when considering a suitable site to ensure that electricity and water can be provided economically in sufficient quantity.

Desirable features of the site. Shaded sites reduce the heat gain from the sun and hence help to lower costs. This is particularly important in selecting the site for a domestic building. Green vegetation has a cooling effect and is preferable, as a surround, to tar macadam pavements and other dark surfaces which absorb the heat of the sun and become unpleasantly hot. Shading trees and shrubs can often be grown afterwards fairly rapidly, when the site is bare, provided the soil is suitable and there is sufficient rainfall.

Orientation. In an ordinary building in the tropics there are four main factors to consider in deciding orientation on functional grounds: (1) Reduction of heat gain due to solar radiation. (2) Making good use of prevailing breezes to promote comfort. (3) Reduction of site and foundation work. (4) Risk of soil erosion around the building.

If a building is to be air conditioned, it will not be usual to attach much significance to cross-ventilation. It is extremely important, however, to reduce the solar heat gain and where possible an east-west axis for the building should be used. This will be possible only if the contours of the site are suitable, otherwise the foundation work will be considerable and the risk of soil erosion round the building serious unless expensive measures are taken.

Fig. 1 shows how, near the Equator, considerably more heat falls on an east or west wall than on a south or north wall during most of the year. Using an east-west

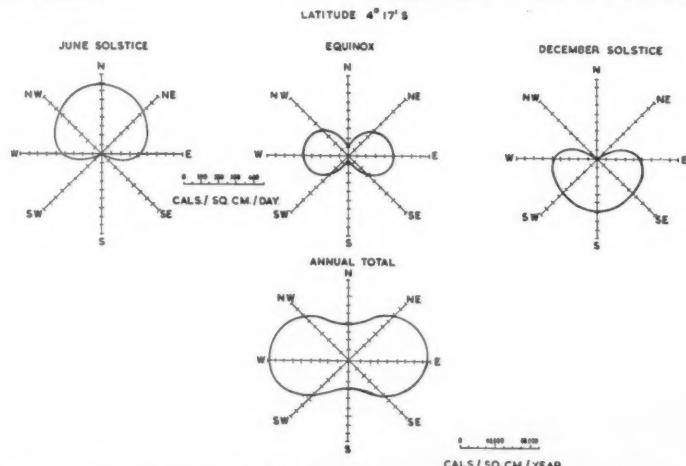


Fig. 1. The diagrams, plotted for a latitude of about 4° S, show the amount of energy from the sun falling on vertical walls facing any direction at the equinoxes and the solstices. They are read radially from the centre along the line normal to the surface of the wall. If the energy is totalled over the year it is found that considerably more energy falls on walls and windows facing east or west, as the last diagram shows, than on those facing north or south, at this latitude

axis reduces the exposed area of east and west walls to a minimum. The use of a long, narrow plan should be avoided, however, as this will increase the exposed perimeter of the walls. Longer duct or pipe runs will also be required if compactness is lost.

Space standards. Costs are directly related to the volume of air to be cooled and/or dehumidified. The initial capital cost of the plant is at the present time of the very approximate order of 2s. 6d. for each cubic foot of space to be cooled. Annual running costs may be as high as 1s. 0d. per cubic foot in places where the cost of electricity is relatively high, though there is naturally a very wide variation in the actual figure. Economy depends, therefore, on the efficient use of space.

In the tropics, large floor areas and high ceilings are common, particularly in public buildings. Where air conditioning is adopted, such standards are uneconomic. There is no reason why air-conditioned offices should be any larger in the tropics than offices in more temperate climates. There is, indeed, much to be said for making air-conditioned offices as small as possible. For instance, in Germany and other countries of northern Europe, modern offices tend to be more compactly planned than in the United Kingdom (Fig. 2). One reason for these differences in space standards is that, on the Continent, office furniture and equipment is frequently designed as an integral part of the building. This is a step that might be considered in the design stage on grounds of economy.

For domestic buildings the areas now generally adopted for normal housing in the United Kingdom and elsewhere could well serve as a suitable basis for space standards, though there is much to be said for air conditioning only bedrooms in many areas, particularly where the nights are hot and humid. Under such circumstances the restricted space standards proposed should be considered to refer to bedrooms only (Fig. 3).

Ceiling heights. For air-conditioned buildings, headroom will be the determining



Fig. 2. Compact offices with built-in furniture save space and reduce air-conditioning costs. Plans A and B based on continental practice contrast favourably for economy of space with plans C and D based on United Kingdom practice

factor in selecting a ceiling height. A ceiling height of 8 ft. will usually be adequate for rooms of normal dimensions, unless fans are installed for use at certain times of the year. A somewhat higher ceiling may be necessary also in large rooms, both to improve the general proportions and to ensure adequate daylighting. Space may have to be provided for ducts above the ceiling.

Location of cooling plant within the building. The location and space required

for plant and ductwork will depend on the kind of installation used. In multi-storey buildings, considerable space is required if ductwork is to be accommodated. For this reason a chilled water system is often preferred to a ducted air system, a central plant being used to cool the water which is circulated in pipes to cooling units placed in the rooms. Such a room unit consists of a heat exchanger over which the air to be cooled is blown by fans; it works, in fact, like a hot water radiator in reverse. By this means the large ducts required to distribute

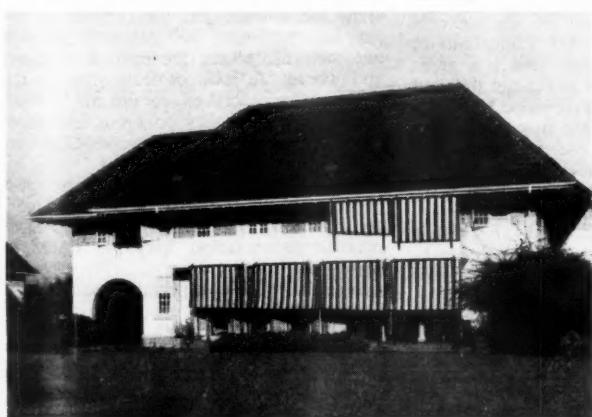


Fig. 3. The adoption of air conditioning may require a vigorous reduction of space standards, if the cost of operation is to be kept down. Compare the large pre-war Malayan house with the air-conditioned prefabricated bungalow built for European staff working on the new Aden oil refinery project. Note the plant room for the air-conditioning equipment, and white finish to the roof

Table 1. Percentage of diffuse solar radiation absorbed by various types of surface

	Per cent
Asbestos cement, new	42-59
Asbestos cement, very dirty (six years U.K.)	83
Bituminous felt	86
Bituminous felt with aluminised surface	40
Clay tiles, red	62-66
Galvanised iron, new	64
Galvanised iron, very dirty	92
Galvanised iron, whitewashed	22
Paints, white	18
Cellulose, dark green	88
Cellulose, dark red	57
Cellulose, black	94
Slates, dark grey	90

Figures taken from Beckett, H. E.: 'The Exclusion of Solar Heat', *INST. HEAT. VENT. ENG. JOURNAL*, 1934, 2 (22), 461-4; 1935, 3 (26), 79-88.

cool air from a central point are avoided. Alternatively, the size of ductwork may be reduced by using a high-velocity air system but these tend to be noisy. However, in single-storey buildings with pitched roofs, the ducts can very conveniently be accommodated in the roof space and ceiling-type air diffusers used.

In large buildings, the cooling plant is often placed in a central position in the basement, thereby reducing the amount of ductwork and/or pipework. In smaller buildings the plant may be in a small room accessible only from the outside: this allows maintenance to be carried out without disturbing the occupants of the building; it facilitates also the use of a three-phase electrical supply complying with the normal regulations.

Sometimes small self-contained room units, requiring no ductwork, are used. These are generally placed against the window wall, as air has to be taken from outside for ventilation and the heat generated by the unit has to be passed outside the building through an opening in the wall. Provision must be made for draining away the water condensed from the air when it is cooled. Provision of space, either on the roof or elsewhere, may also be necessary for cooling towers, etc., where it is necessary to economise in cooling water.

Infiltration of air through openings. Warm or humid air enters an air-conditioned building by infiltration through doorways and other openings. There must therefore be some kind of seal to reduce this. Where traffic entering or leaving the building is heavy, a lobbied entrance or revolving doors should be used. Otherwise external doors and similar openings should, where possible, be self-closing.

Noise. All air-conditioned plants produce a certain amount of noise when operating; normally this is not sufficiently loud to be more than a general background noise. There is also sound transmission along

ductwork—for example, conversation is liable to pass from one flat to another along air-conditioning ducts. As a rule, therefore, it is unwise to use a ducted system in a block of flats other than for distributing cooled air within an individual flat. The same type of problem may arise in offices. To avoid the transmission of noise from pumps, fan motors, etc., machinery should be mounted on flexible insulating bases and flexible connections provided between the central plant and ductwork. Ducts may even have to be lined with sound-absorbent material.

Other factors. Ducted systems can introduce secondary problems. Transmission of airborne organisms can be a problem. The risk of fire transmission is also increased.

CONTROL OF HEAT GAIN FROM OUTDOORS

The initial cost of an air-conditioning plant depends mainly on the peak load it is designed to carry. Running costs will depend more on the average load, though it is important to bear in mind that electricity concerns may often base their industrial tariffs on a peak demand rate plus a charge for current consumed. It is, therefore, important to reduce both the peak heat load and the total heat gain in an air-conditioned building. The ways in which this may be done are reviewed in the following paragraphs.

Reducing the exposed roof area. In the tropics, more solar heat falls on the roof than on any other part of a building. Exposed areas should, therefore, be kept to a minimum. A multi-storey building has a smaller exposed area per unit floor area than a single-storey building. Other things being equal, it can be air conditioned more economically.

Using a light-coloured surface finish on walls and roof. The colour of the outside surfaces of a building exposed to the sun plays a large part in reducing the heat passing into the interior. This is especially so with the roof. When sunshine falls on an opaque surface, part of the heat is reflected and part absorbed. Light colours and bright metal surfaces reflect a great deal of the sun's heat. Buildings finished with dark surfaces absorb more heat and place a greater load on the air-conditioning system. Table 1 gives the percentages of diffuse radiation (sunshine) absorbed by a number of typical materials. The effectiveness of a whitewashed surface will be noted.

Light-coloured surfaces may lose their reflectivity rapidly under adverse conditions, for example, in some humid climates through mould and algal growth or in desert climates through dust. A balance, therefore, must be struck between using a very light finish which may require frequent renewal and a more lasting finish of lower reflectivity.

Ventilating the roof space. Hot air tends to accumulate in the roof space. This can be largely removed by ventilation, thus

reducing the heat passing into the main structure. Ventilation of roof spaces in warm climates may be advisable for other reasons also. There is a risk of condensation occurring at times on the relatively cool upper surfaces of the ceiling, particularly in very humid climates, and a good circulation of air helps to disperse this. It is easy to ventilate the space below a pitched roof, but a flat roof presents a greater problem. Here the space between roof and ceiling should be as deep and as free from obstruction to air flow as possible and soffit openings should be large.

Insulating the roof-ceiling structure. The thermal resistance of the roof-ceiling construction should be high, to reduce the transfer of heat through the roof. Types of construction that would have a U-value of less than about 0.12 B.t.u./sq. ft./hr./°F. measured under English winter conditions give fairly adequate insulation, except where electricity is particularly expensive or shade temperatures very high, when more insulation is called for.

In selecting insulating materials for the tropics it is necessary to bear in mind that there are certain insulating materials that may not be suitable. The following points should be considered: (1) Ability of local labour to handle installation of the material. (2) The liability of the material to be adversely affected by condensation and damp in the humid tropics. (3) The risk of biological attack, especially by ground and dry wood termites, or severe mould or algal attack. (4) The risk of vermin infestation with certain types of cavity construction. It is advisable to refer to local experience if possible.

The building will normally be under positive pressure, if fully air conditioned. It is necessary, therefore, to take steps to reduce the loss of cooled air through the roof-ceiling structure by providing a reasonably effective seal. Flat roofs of concrete provide an effective seal, but unless very great care is taken in design, construction, and the choice of aggregates, etc., the risk of severe failures is considerable. Experience in many under-developed areas has shown that the difficulties that may be experienced with flat roofs may rule out their use where the rainfall is heavy, and where the level of technology is not high, unless special efforts are made to get a really good quality concrete laid under expert supervision. This condition frequently cannot be met.

Table 2 sets out in a very approximate order of merit some of the types of roof construction that might be used. More detailed information may be found in specialised publications.

Aluminium foil, especially used in conjunction with ordinary insulating materials, is of value. Having a high reflectivity in the infra-red when its surface is dry, it helps to reduce the low temperature radiation exchange between the hot outer surface of the roof and the cooler upper layer of the ceiling. It may be used in the form of sheets or as corrugated foil. Some difficulty with handling by local labour has been reported.

Table 2. Suitability of different types of insulated and uninsulated roof-ceiling constructions for air-conditioned buildings in the tropics

Section I. Pitched roofs with insulated ceilings

In most areas lightweight roof coverings like galvanised iron, asbestos cement or aluminium sheeting are used, and tiles will be available at a competitive cost only in comparatively few places due largely to high cost of transporting heavy materials over big distances. Examples of tiled roof structures have been set forward in this table, as U-values were readily available. Though it is possible to compute U-values for other types of construction, any extra work was not felt to be justified, in view of the very limited significance of the winter U-value concept under tropical conditions of downward heat flow.

(U-values measured or computed for English winter conditions are given in brackets.)

Corrugated asbestos without ceiling (1.40)	Very poor
Corrugated asbestos, one sheet of aluminium foil insulation 1 in. below sheeting (0.50)	Poor
Corrugated asbestos, two sheets of aluminium foil insulation, $\frac{1}{2}$ in. apart and 1 in. below sheeting (0.25)	Not good
Tiles on battens and felt (0.70)	Poor
Tiles on battens, boards and felt, lath and plaster ceiling (0.28)	Not good
Tiles on battens and felt with 1-in. corkboard ceiling plastered (0.17)	Fairly good
Tiles on battens and felt with 2-in. woodwool slabs on ceiling plastered (0.18)	Fairly good
Tiles on battens and felt with 4-in. layer of glass wool, rock wool, slag wool, or expanded vermiculite above ceiling boards (0.08)	Very good
Tiles on battens and felt with 4-in. layer of insulation as above with a layer of aluminium foil to reflect infra-red radiation on top (less than 0.08)	Excellent

Section II. Flat roofs. (Winter U-values taken from A.S.H.V.E. Guide given in brackets)

Asphalt on 6-in. concrete (0.65)	Very poor
Asphalt on 6-in. concrete lined with 1-in. cork and plastered (0.21)	Not good
Asphalt on 6-in. concrete lined with 2-in. cork and plastered (0.12)	Good
Asphalt on 6-in. concrete with inner ceiling (lath and plaster) (0.37)	Rather poor
Asphalt on 6-in. concrete with inner ceiling + 2-in. corkboard (0.11)	Good

(The value of slabs raised on blocks about 3 in. from the main roof structure should be borne in mind as an effective way of reducing the heat load on the roof.)

If insulation is fixed on the slant close to the underside of a pitched roof, it may be difficult to devise a method of getting sufficient air movement in the narrow cavity to evaporate any water that may condense. This may cause trouble with materials susceptible to deterioration when damp. There is also the risk of vermin infestation in the narrow cavity and it is nearly impossible to carry out inspections for dry wood termites, etc. In certain areas, therefore, such narrow unsealed cavities are undesirable.

Shading the walls. In the tropics, the east and west walls are those liable to contribute most to the cooling load. They therefore require most consideration. On single-storey buildings small overhangs will shade north and south walls for the greater part of the day in the tropics. East and west walls, however, cannot be protected effectively by small overhangs. A 10-ft. horizontal projection from a 10-ft. wall will keep the sun off only for about six hours. Before and after these hours the sun's rays fall almost normal to these surfaces and hence tend to

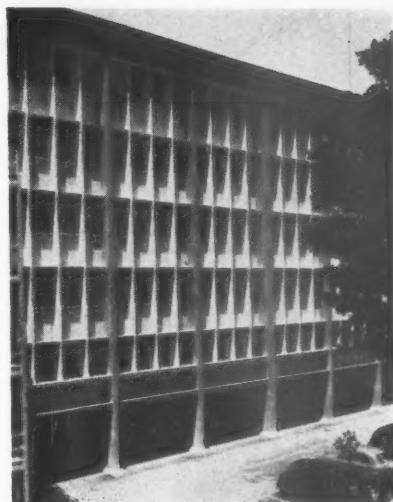


Fig. 4. The new air-conditioned government offices at Hong Kong have been oriented north-east south-west due to the limitations of the site. These windows on the south-west façade have been shaded by a combination of vertical and horizontal fins. Windows on other façades would require a different type of shading device

produce a considerable amount of heating. Vertical obstructions on the east and west sides are, however, valuable in keeping the sun off: trees, trellis-work with vines, other buildings, etc., are all useful for protecting these vulnerable walls. In high buildings, though various sunshading devices have been used, shading of walls may prove costly and therefore uneconomic.

Providing walls of high thermal resistance of sufficient thermal capacity. For structural economy, materials used for roof construction should preferably be light in weight. In the walls, on the other hand, heavier materials can be used. The advantage of heavyweight construction is that it helps to reduce the peak rate of heat gain.

The external conditions that determine the peak load are usually at their worst in the early afternoon when the outside air and ground temperatures are at their highest, and the radiation load from the sun is still very considerable. It is im-

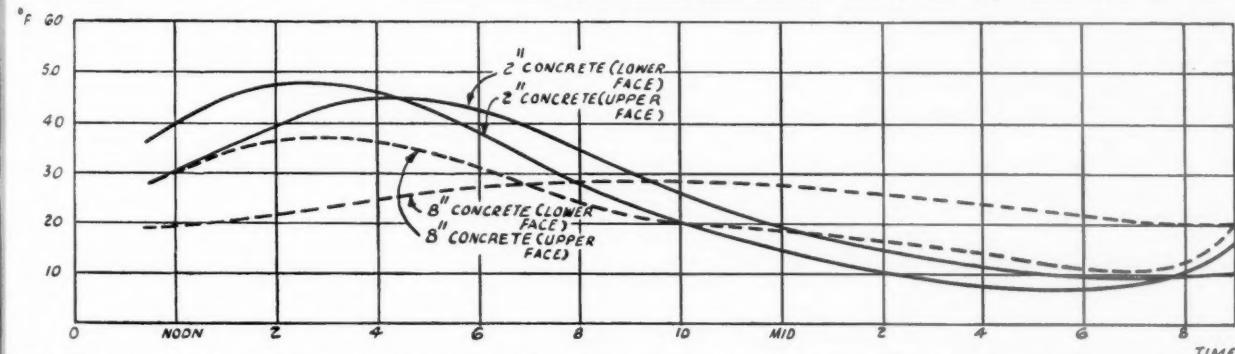


Fig. 5. These records of temperatures on the top and bottom faces of concrete slabs, exposed simultaneously on one side to intermittent heating of the sun at the Building Research Station, show the greater temperature range of the thinner slab. Also note the delay in the arrival of the temperature wave at the lower surface. Walls of high heat capacity help reduce the heat load on the air-conditioning plant, and may lower costs

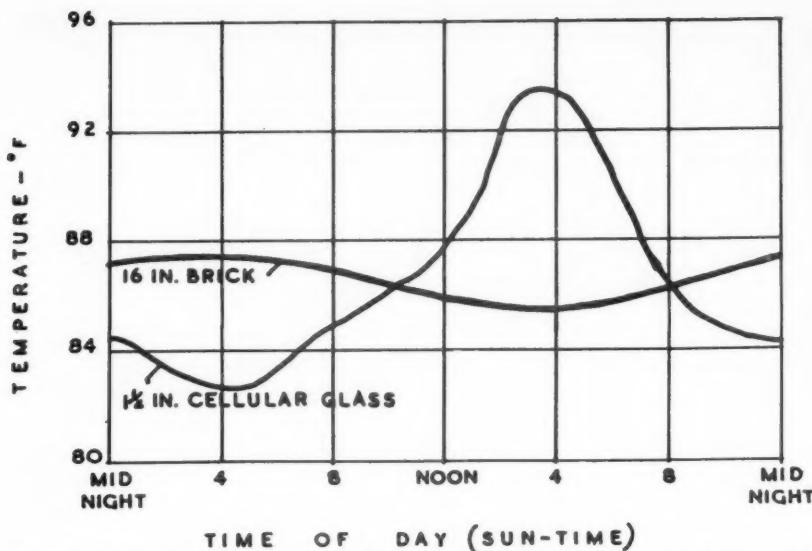


Fig. 6. The thermal resistance of a 16-in. solid brick wall and 1½-in. cellular glass wall are approximately equal. This diagram, however, illustrates that the inside surface temperatures under conditions of intermittent heating will be very different for the two walls. Masonry type construction is to be preferred to lightweight for an air-conditioned building

portant, therefore, to try to reduce this peak load by spreading the heat gain over a long period. Then the maximum capacity of the plant to be installed may be reduced.

The effect of mass on the temperature changes experienced is illustrated by an example of some actual measurements carried out at the Building Research Station on concrete slabs shown in Fig. 5. These measurements underline two important points: (1) The amplitude of the temperature variations is reduced by increase of mass. (2) The temperature wave takes some time to pass through the material, the delay increasing with increase of mass.

It is possible to calculate the lag periods. The figures for dense concrete computed by Mackey and Wright² are as follows: 4-in. concrete, 3 hours' lag. 8-in. concrete, 5½ hours' lag. 12-in. concrete, 8½ hours' lag.

The use of high thermal capacity walls therefore delays the arrival of the peak heat wave through the wall until the heat load from other sources, such as the ventilation air and radiant heat coming through the windows, has fallen. It has the added advantage of stabilising indoor conditions against small temperature fluctuations, and thereby simplifying the problem of controlling the output of the plant. In other words, it is desirable for mechanical reasons, as well as on grounds of overall economy, to use walls of high thermal capacity (Fig. 6).

The walls should preferably be insulated to increase their thermal resistance. Many of the comments already put forward on the insulation of the roof-ceiling structure again apply. It is advantageous to use cavity construction where possible. Frequently it will be necessary to seal the cavity completely against infestation. Table 3 sets out a number of different types of

wall construction grouped roughly in order of merit. The list is not intended to be comprehensive.

Reducing heat gain through windows. The aim in designing windows for buildings that are to be air-conditioned should be to achieve a good quality of daylighting without the use of excessive areas of external glass, otherwise the heat gain to the interior will be considerable. This is of particular importance in dry climates where the ground is highly reflective. In such areas quite small openings will provide an adequate level of illumination, especially if internal surface finishes are light in colour and windows are designed and located with care. In humid climates the large openings normally required for ventilation will not usually be needed in a building air conditioned all the year round (Fig. 7). Air-conditioning plants may be operated in one of three ways. They may provide: (1) All-the-year-round cooling. (2) Cooling in summer and heating in winter. (3) Cooling for a limited hot season, natural ventilation being used for the rest of the year.

Under the first two conditions, natural ventilation will be needed only in an emergency, e.g. as the result of a breakdown in the air-conditioning plant. Where service facilities are good and where there is adequate stand-by plant, the risk of a prolonged breakdown is small; therefore little or no account need be taken of the requirements for natural ventilation. Where, however, the plant is only operated seasonally, or where—as in a number of territories at present—servicing facilities are inadequate, the risk of prolonged breakdown is appreciable, provision must be made for natural ventilation when the plant is not operating. Fans may also be needed.



Fig. 7. In hot, dry areas, where the ground is usually bright and there is comparatively little cloud, effective use is made of reflected light in traditional buildings by using high windows and light-coloured ceilings which throw the light back into the interior. These windows in Kano, N. Nigeria, show how small the openings are in traditional practice. Comparatively small windows, designed and located with care, should be used for an air-conditioned building in such areas

All windows must shut tight. If openings must be provided for natural ventilation at certain seasons, they need not necessarily be completely glazed. Opaque shutters are used effectively in many areas; they should preferably be painted white to reflect the heat and to assist with providing daylight by inter-reflection.

Windows should be shaded. Simple horizontal overhangs may be used for north and south windows, while a combination of vertical and horizontal fins can be used for windows facing south-east, north-east, north-west, or south-west. Windows in west and east walls, on the other hand, can be protected effectively only by some form of adjustable sunshade or louvred shutter, or else by vertical obstructions such as trees, etc. Such windows should, therefore, be as few as possible.

Shading devices should, wherever possible, be located outside the glazing. Shades on the inside, as the following figures from the American Society of Heating and Ventilating Engineers' Guide show, are relatively ineffective. (1) Outside venetian blind fully covering window, cream finish, 30 per cent of outside solar heat passed to room. (2) Inside venetian blind various colours, including cream, 70–86 per cent of outside solar heat passed to room (Fig. 8).

The comments so far put forward have been largely confined to ways of achieving adequate illumination with reasonably small windows in order that the radiant heat gain may be kept small. The gain of heat by conduction through the glass has not been considered. A single sheet of glass has very little thermal resistance—it is desirable sometimes to use double glazing to reduce the heat gain as the following figures for the overall heat transmittance (measured under winter conditions) illustrate: (1) Single glazing, U-value, about 1.2 B.t.u. sq. ft./hr./°F. (2) Double glazing, U-value, about 0.6 B.t.u. sq. ft./hr./°F. It may

Table 3. Suitability of different types of insulated and uninsulated wall constructions for air-conditioned buildings

In most tropical areas walls are constructed with concrete, either reinforced or more usually in the form of blocks. Cored blocks should be used where possible, for this helps increase the thermal resistance slightly. All types of masonry construction can usually be insulated in very similar ways to brick construction. The fixing of insulation may present problems, if adequate consideration is not given to the problem in the design stage. A number of examples in this table are of brick construction. These have been quoted, because U-values were more readily available, for purposes of comparison. Though U-values may be computed, it was not considered these would have sufficient significance in practice to justify the calculations in this instance.

Construction.

Comments.

Section I. Well insulated. (U-values computed for English winter conditions are given in brackets)

11-in. cavity brickwork + 1-in. quilt of glass wool, rock wool, or slag wool on battens finished with hardboard on battens (0.12).

11-in. cavity brickwork with aluminium foil on battens with facing of hardboard on battens (0.15).

11-in. cavity brickwork with 2-in. wood wool slabs (0.15).

Good thermal insulation with high heat capacity. Some risk with moisture due to absence of vapour barrier.

Good thermal insulation with high heat capacity. Aluminium reflects low-temperature radiant heat. Aluminium can be used as vapour barrier.

Good thermal insulation with high heat capacity. Vapour barrier would be desirable in humid areas.

Frame construction—

½-in. asbestos cement, aluminium foil, ½-in. insulating board separated by cavities (0.16).

Good thermal insulation but low heat capacity. Aluminium foil reflects low-temperature radiant heat.

The performance of cored blocks, insulated in a similar way to brick walls above, would be slightly worse than for similar construction with brick cavity walls.

Section II. Fair insulation only. (U-values measured under English winter conditions are given in brackets)

Aerated concrete. Cavity construction, 2 blocks of 4 in. with 2-in. cavity (0.21). 8-in. clinker concrete poured *in situ*, plastered and rendered (0.26). 20-in. cavity brickwork plastered (0.22).

Medium thermal insulation. Thermal capacity not high. No vapour barriers. Fair thermal insulation. Medium thermal capacity. No vapour barrier. Fair thermal insulation. Very high thermal capacity. No vapour barrier.

Section III. Poor insulation. (U-values measured under English winter conditions are given in brackets)

11-in. cavity brickwork plastered, cavity unventilated (0.31). 6-in. hollow clay block, rendered (0.36). 18-in. stone (about 0.40). 8-in. no-fines concrete rendered and plastered (0.42). 9-in. brick plastered (0.42). 42-in. brick plastered (0.57). 8-in. gravel concrete 1 : 2 : 4 (0.60). Sheet claddings like asbestos cement, corrugated iron with no insulation (about 1.50)

The thermal resistance of these types of construction is low. The majority of them have a high thermal capacity. Used in air-conditioned buildings, they will help stabilise the cooling load. If the indoor-outdoor temperature difference is large, more insulation is required. Where this difference is small, then extra insulation may not be required.

also be advantageous to use heat-absorbing glass in the outer leaf, though this may be rather expensive.³

The type of climate in which the building is to be erected will largely determine the amount of extra money that can be spent on such precautions to reduce heat gain by conduction. In the hot humid tropics, in normal air-conditioned buildings, the temperature differences between the outside air and the air within the room are usually

not very large, for the air is conditioned more by dehumidification than by a large drop of temperature, consequently the conduction heat gain is small. Thus only limited expenditure will be justified. In hot dry climates the conduction heat gain may be very considerable, especially if large windows are used. The use of double glazing may then be more than justified on grounds of economy in day-to-day running of the plant.

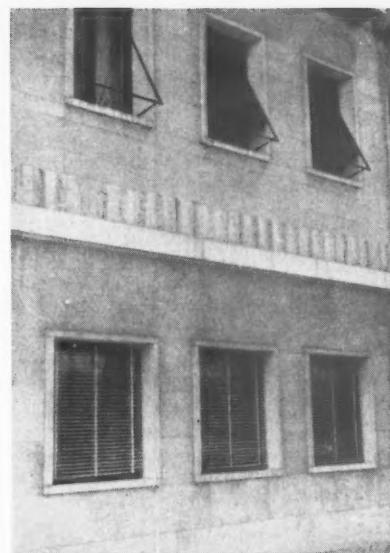


Fig. 8. White venetian blinds fixed outside the glazing considerably reduce radiant heat transmission. Mounted inside, they are relatively ineffective. Suitable fittings must be provided to secure the edge of the slats otherwise damage may result from high winds. Sturdier shutters have to be used in more exposed positions.

CONTROL OF INDOOR HEAT AND MOISTURE GAINS

Much thermal energy is required to remove a comparatively small amount of water vapour from the air because of the high latent heat of evaporation of water. The moist air has to be cooled to a low temperature to condense out the required amount of water vapour and then may have to be reheated to bring it to a comfortable temperature. The removal of moisture is therefore an expensive process; every effort must therefore be made to keep the



Fig. 9. A street scene in Hong Kong which emphasises the importance of adequate facilities for drying and airing clothes in the humid areas of the tropics. This activity is one which will increase the moisture content of the air. Like cooking and bathing it is best isolated from the conditioned area, if the moisture load on the plant is to be kept down.

moisture gain down. There are two main sources of moisture gain: (1) External, i.e. in the ventilation air, infiltration through cracks, dampness passing through permeable walls. (2) Internal, i.e. cooking, bathing, drying clothes.

The following steps are desirable to control moisture infiltration, particularly in humid areas: (1) The amount of fresh air entering should be kept to the correct amount. Infiltration around windows or through cracks in the floors should be kept to a minimum. (2) All permeable materials surrounding the conditioned space should have a vapour barrier on the warm side, i.e. on the outside of the insulation, *not* on the side facing the interior of the room. (3) There should be a damp-proof membrane in a concrete floor on damp ground.

Human occupants generate moisture, and little can be done to reduce the latent heat gain from the breath and through invisible perspiration, etc. Effective steps can, however, be taken to reduce the moisture gain from other sources.

The principal domestic activities increasing the amount of moisture in the air are: cooking, bathing and drying clothes. In design, two approaches to the problem may be made: (1) Isolation of these activities from the conditioned part of the building—this is usually the cheaper plan. (2) Accepting these activities within the cooled space and making provision for the elimination of much of the moisture at source (Fig. 9).

Kitchen design for air-conditioned buildings. If the kitchen space is to be air conditioned, the following points should be borne in mind: (1) An efficient cooking appliance must be used. Electricity or gas where available would be the best sources of energy, the alternative is kerosene (burning wood on open grates in air-conditioned buildings is fantastically uneconomical). (2) A hood and fan should be provided over the stove to draw off direct to the outside air the moisture and heat created in cooking. (3) The kitchen should be isolated from the rest of the house when cooking is in progress.

Bathroom. It may be advisable in humid areas to provide a small extract bathroom fan to remove moisture.

Electric light fittings. Light sources can generate considerable heat, but, by the use of efficient appliances, adequate illumination can be achieved at a reasonably low power input. Reflective finishes will also help by making the same level of illumination possible with a smaller output. Fluorescent sources generate less heat than do incandescent sources. Used in correctly designed fittings with adequate protection against glare, their performance is quite satisfactory. In some large public buildings and offices special fittings have been used for large air-conditioned public rooms, the heat from the lights being exhausted direct to the outside air, instead of entering the conditioned space. This is worth investigating when design of such buildings is being considered. The new High Court building

at Lagos, Nigeria, has a lighting system, the heat from which is extracted by fans directly to the outside air. Ballasts and chokes for fluorescent sources are frequently mounted outside the conditioned space, thus reducing the cooling load.

Conclusions. An attempt has been made to set out some of the factors to be considered in designing buildings in the tropics to be air conditioned. Particular emphasis is laid on the fact that the use of air conditioning makes it necessary to break with traditional types of design if economical installations are to be achieved.

Much must depend on local conditions in making the final choice of the materials and types of construction to be used, and every effort should be made to find out as much as possible about existing experience with air-conditioning plant in the region in which the building is to be erected. There is a common fallacy that there is one type of climate in the tropics and therefore one type of problem to be solved. In many under-developed territories in the tropics skilled labour is difficult to find. Simplicity in design is therefore most desirable.

The main recommendations may be summarised as follows:—

- (1) Ensure that essential services are or can be made available before selecting the site.
- (2) Choose a suitable site to allow correct orientation, with shading trees if possible.
- (3) Keep the volume of air-conditioned space to a minimum.
- (4) Control air infiltration to reduce the cooling load.
- (5) Use reflective surface finishes on walls and roof.
- (6) Design a roof-ceiling construction of high thermal resistance.
- (7) Use walls of reasonably high thermal capacity to reduce peak heat load, and to stabilise indoor temperature fluctuations.
- (8) Insulate the walls.
- (9) Design daylighting with reasonably small windows, shaded from the direct rays of the sun.
- (10) Consider the use of double glazing.
- (11) Control moisture gain indoors by planning and/or the use of extract fans in kitchens, bathrooms and laundries.
- (12) Control heat gain indoors from ovens, electric fittings, etc., by exhausting heat directly to the outside, when possible.

Compromises will frequently be necessary. It will often be impossible to put all these recommendations into practice.

American estimates give the cost of cooling as five times as great as that of heating. Electricity tariffs in many tropical areas are high, and water expensive, therefore economies in prime cost may not be justified in terms of the high running costs which result.

This article represents a summary of existing experience from a number of sources. Further experience with air conditioning may show that some of the suggestions put forward require modification.

Acknowledgements. This paper is published by permission of the Director, Building Research Station. The author is grateful for assistance from a number of sources, in particular Col. Biggs of the Nigerian Public Works Department, who made it possible to inspect a number of installations in Nigeria, the British Petroleum Company Ltd., the Air Ministry, the Hong Kong Public Works Department, and the Director of the West African Building Research Institute.

Footnote to Tables 2 and 3. The U-values quoted in these tables relate to *outward* heat flow under British winter conditions and cannot be accepted as valid under conditions of *inward* heat flow with a high radiation heat gain at the outer surface. For lack of more appropriate data they are given as a rough indication of the probable order of insulating value of the various constructions listed. They tend, in particular, to underrate the value of reflecting materials like aluminium foil.

References

1. *The Heating, Ventilating and Air Conditioning Guide* (Annual), The American Society of Heating and Ventilating Engineers, New York.
2. Mackay and Wright, figures quoted in *Thermal Properties of Buildings*, N. S. Billington, London, 1952. Cleaver-Hume Press Ltd.
3. Colonial Building Note No. 20. *Heat Absorbing Glass. Its Use in Building for Warm Climates*. The Building Research Station, Garston, Watford, Herts. Copies may be obtained by application to the Colonial Liaison Officer.

Practice Notes

Edited by Charles Woodward [A]

IN PARLIAMENT. London Builders' Conference: Report of Monopolies Commission. Mr. H. F. L. Turner (M.P. for Oxford) asked the Minister of Works whether he would now make a statement about the Report of the Monopolies Commission on the Supply of Buildings in the Greater London Area.

The Minister of Works, Mr. Nigel Birch, replied: Yes, Sir. As I stated in reply to the Hon. Member for Accrington on 19 October last, the London Builders' Conference has abandoned the practices criticised by the Commission. I welcome and accept their assurances. Similar practices have been followed to some extent outside London and the Government take the view that these also should be given up.

In future firms will not be included on any list of approved Government contractors for new buildings if in tendering for such work they follow the practices criticised by the Commission. The firms already on the lists are being asked to confirm that they wish to remain there and accept this condition. This will make it unnecessary to continue the use of the form

of declaration which was directed against these practices. The attention of the associations of local authorities is being drawn to the Report and to the action taken.

MR. TURNER: Is my right hon. Friend aware that the outcome of this matter, which he has just announced, will give very general satisfaction?

MR. H. HYND: Can the Minister say whether the ban on firms being allowed to contract if they do not comply with these conditions will apply to contracts for local authorities?

MR. BIRCH: No, Sir. What I said applied to the Government list of tenderers. As the hon. Gentleman knows, local authorities follow different practices, and it will be up to them to decide what to do, but I am drawing their attention to what we are doing.

MR. GIBSON: Can the Minister say whether the recommendation of the Monopolies Commission to the effect that there should be a conference between the London Builders' Conference, the R.I.B.A., and other building interests, has yet taken place, and if so, what the result was?

MR. BIRCH: There has been no general conference of the parties concerned. I have seen them individually.

MR. GAITSKELL: Is the right hon. Gentleman satisfied that he will be able to check whether, in fact, these practices are continued or not?

MR. BIRCH: I think that our ability to check whether they are being followed or not will remain as good or as bad as it is now. I think that we should be able to detect any flagrant abuse. (21 December 1954.)

MINISTRY OF HOUSING AND LOCAL GOVERNMENT. **Slum Clearance Procedure.** Circular 75/54 dated 16 December addressed to housing authorities in England, gives guidance on the procedure to be followed in making and submitting orders relating to slum clearance. This guidance is given in the form of appendices which are attached to the Circular which deal with clearance areas, clearance orders, compulsory purchase orders, orders made before the war, public rights of way orders and miscellaneous questions. The Circular is obtainable at H.M. Stationery Office, price 6d. net.

The Housing (Form of Orders and Notices) (Amendment) Regulations, 1954. These Regulations came into operation on 17 December and deal with the forms of notice required by the Housing Repairs and Rents Act, 1954, in respect of the execution of works or to reduce the number of occupants, to abate overcrowding, purchase of an unfit house by a local authority, postponement of demolition and clearance orders made before the commencement of the Act. The Regulations are obtainable at H.M. Stationery Office, price 6d. net. (Housing, England, S.I. 1954, No. 1632.)

The Housing (Declaration of Unfitness) Regulations, 1954. These Regulations came into operation on 17 December and prescribe the form of the order declaring a house to be unfit for human habitation and the form of an explanatory notice required to be served on the persons concerned. The Regulations are obtainable at H.M. Stationery Office, price 3d. net. (Housing, England, S.I. 1954, No. 1633.)

Town and Country Planning Act, 1954. The Ministry have issued a booklet giving in question and answer form information to those who have a claim under the new Act. It is obtainable at H.M. Stationery Office, price 6d.

Industrial Development under the Act of 1954. Under the Planning Act of 1947, section 14, development in respect of industrial buildings requires a certificate from the Board of Trade before the local planning authority can consider an application for planning permission, unless the aggregate floor area of the proposed building is not more than 5,000 sq. ft.

Section 59 of the new Planning Act of 1954 appears to provide that an application may be made to the local planning authority for permission to erect an industrial building without a certificate from the Board of Trade, and if the authority would have refused permission even if a certificate had been issued by the Board they must serve on the applicant a notice to that effect. The applicant could then appeal to the Minister under section 16 of the Act of 1947 and sections 19 and 20 of that Act would still be available if the appeal is dismissed. Section 23 of the Act of 1954 gives the Minister power to grant permission for some other development than that to which the application relates.

WHAT IS A 'BUILDING'? Under the Housing Repairs and Rents Act, 1954, landlords, in claiming an increase of rent, are allowed to work out an aggregate of repairs for a 'building' containing two or more dwelling houses.

In a recent County Court case where the premises consisted of flats built in three blocks in three adjoining roads, each block was regarded by the landlords as a 'unit' consisting of two blocks of flats, one on each side of the road. This was for the purpose of rent collection, repairs, administration, etc., each 'unit' being treated as a whole.

It was claimed on behalf of the landlords that each 'unit' should be considered as a building within the meaning of the Act, which would allow the landlords to claim a rent increase from all the tenants for each building as a whole. For the tenants it was submitted that two blocks could not be called a 'building' within the meaning of the Act.

Under the Act the landlords had to prove that each tenant received some benefit, direct or indirect, from repairs carried out by them, and in giving judgment for the tenants the judge applied this test, and said that if the answer is 'No', it does not matter

how the landlord elects to deal with repairs. The judge did not decide what was a 'building', but he said that one of the 'units' was not a building. (THE ESTATES GAZETTE, 4 December 1954.)

A 'building' under the Town and Country Planning Act, 1947, is defined as including any structure or erection and any part of a building as so defined, but does not include plant or machinery comprised in a building. Under the War Damage Act, 1943, 'building' includes a building in an incomplete state. Under the Roads Improvement Act, 1925, 'building' includes any erection of whatsoever material and in whatsoever manner constructed, and any part of a building, and 'new building' includes any addition to an existing building.

Under the Restriction of Ribbon Development Act, 1935, 'building' includes any structure or erection of whatsoever material and in whatsoever manner constructed and any part of a building. (Fences, gates and posts, etc., are excluded.) Under the Public Health (London) Act, 1936, 'building' includes, in relation to any building, the curtilage thereof.

The London Building Act, 1930, defines a 'building of the warehouse class' and the 1939 Act defines a 'domestic building' and a 'public building', but neither Act defines a 'building'.

The Model Bye-laws issued by the Ministry of Housing and Local Government define the erection of a building as 'the roofing over of any open space between walls or buildings'.

In the London Building Bill of 1894, the following definition of a 'building' was included but was struck out by Parliament: 'An erection comprising a cubical space defined by walls, posts, piers, columns or other supports or enclosures, and a roof, whether the erection is wholly enclosed or not, and whether it is fixed on permanent foundations or not, and of whatever material the supports, enclosure or roof may be composed.'

The word 'building' has received various judicial interpretations, some under Acts of Parliament, others in reference to covenants against building. It would appear to depend on the facts of a case applied to the particular Act of Parliament under consideration, and therefore case law should not be regarded as conclusive. Under the London Building Act, 1894, it was decided by the House of Lords that dampness in a wall is not a defect in a wall which divides two gardens. This case arose in an appeal from a Party Wall Award to the County Court, from there to a Divisional Court, thence to the Court of Appeal and finally to the House of Lords. The legal costs involved were many times the cost of any remedial measures to cure the dampness, but it is an illustration of judicial interpretation having regard to the facts and the particular Act.

BUILDING LICENSING. Defence Regulations (No. 7) Order, 1954 (S.I. 1954, No. 1478), came into operation on 10 November 1954. They revoke Defence

Regulation 56 and Schedule 6 of the Defence (General) Regulations, 1939. Building licences are no longer necessary as from 10 November.

THE TOWN AND COUNTRY PLANNING ACT, 1954. This Act received the Royal Assent on 25 November and, under S.I. 1954, No. 1598, 1 January 1955 was the day appointed for the Act to come into operation for all purposes.

The Central Land Board Payments Regulations, 1954 (S.I. 1954, No. 1599), have been laid before Parliament and came into operation on 1 January 1955. They set out the procedure for applying to the Central Land Board for payments on account of past events other than planning restrictions. The Town and Country Planning (Compensation) Regulations, 1954 (S.I. 1954, No. 1600), set out how compensation may be claimed from the Minister in respect of planning restrictions, and came into operation on 1 January 1955.

Circular 78/54 dated 7 December 1954 addressed to local planning authorities in England and Wales, gives guidance in respect of procedure under the Act and Regulations dealing with compensation.

The Circular states that it is proposed to issue a booklet in January containing answers to a number of possible questions. It will be on sale at H.M. Stationery Office. Where an enquirer's questions are not answered by the booklet he should consult the Regional Manager of the Central Land Board in respect of payments under Part I of the Act, and in any other case the Ministry of Housing and Local Government. The Circular is obtainable at H.M. Stationery Office, price 2d., together with the Regulations, price 3d. and 4d. respectively.

TOWN AND COUNTRY PLANNING. The Central Land Board (Provision of Information) Regulations, 1954. (1954, No. 1720, S.I.) These Regulations prescribe the forms to be used and the manner in which applications are to be made to the Board in respect of an unexpended balance of established development value. The Regulations are made under sections 48 and 68 of the Town and Country Planning Act, 1954.

LAW CASES. *Palmer and Others v. Bronk, Davis & Rushy Ltd.* In the Court of Appeal on 2 December an appeal from the judgment of an Official Referee was heard concerning the lessees' breach of decorating covenants and an allegation of damage to reversion of a lease because of non-compliance. The Official Referee had awarded £680 damages to the landlords. Under the lease the landlords were liable for structural repairs and they had failed to carry out such repairs. The lessees contended that until the landlords had carried out their obligations it would be a waste of money to carry out decorative repairs.

In allowing the appeal the Court said:—In 1951 the tenants complained that the landlords had not kept the premises in

good repair. After the expiry of the lease on 25 March 1952 surveyors for the parties agreed that the cost of the decorations would be £580, and the landlords demanded payment of that sum. The tenants said that that sum was more than the damage to the reversion, and they pointed out that there had been structural defects because of the landlords' failure to carry out their obligation to keep the structure in repair. They said that it was no use doing decorations until the structure had been put right, and the structure was the landlords' responsibility.

The landlords instructed another surveyor, who prepared a schedule of £1,100 and £700 for loss of rent. Section 18 of the Landlord and Tenant Act, 1927, provided that damages for breach of a covenant to keep or put premises in repair during the currency of a lease, or to leave or put them in repair at the termination of a lease, should in no case exceed the amount (if any) by which the value of the reversion (whether immediate or not) in the premises was diminished owing to the breach of covenant. The tenants said that the damage to the reversion was not £580, which was the cost of the work. The Referee had found out that the landlords let the structure get into a bad state, and that it would have been a waste of time and money to do decorations before the landlords did the structural repairs. He also said that if the decorations were done without the structure being repaired the premises would not have been lettable.

In the Court's judgment the tenants' argument was correct in the respect that the Referee must have based his decision on the cost of doing the work, and that was not the right test. It has been said that the cost of doing the work was often a good guide to the damage to the reversion, but that was in a case where the landlord had done the work or was going to do it immediately after the term of the lease came to an end. If he was not going to do the work, the cost of the work was not the proper test. The Referee had misdirected himself by taking the cost of the work as the test, whereas he should have taken the diminution in the value of the reversion. Only one witness had stated what was the damage to the reversion, and he had said that it was £350. His Lordship thought that that was the proper figure, and that the appeal should be allowed and judgment entered for the plaintiffs for £350. They would have to repay £330 to the defendants, who would have the costs of the hearing of the action and the appeal.

Leave to appeal to the House of Lords was refused. (THE ESTATES GAZETTE, 11 December 1954.)

Edwards and Webster v. J. P. Coley. Claim for Fees. His Honour Judge G. Kirkhouse Jenkins, Q.C., gave his judgment at Bath County Court on 9 December in a case the evidence in which had been heard at Chippenham in October in which a firm of architects sued a client for payment for professional services.

Edwards and Webster, architects, of

Chippenham and Devizes, claimed £52 10s. from J. P. Coley, of 'Pin Farthings', Pew Hill, Chippenham, for services in connection with the preparation of plans and specifications for a house. Evidence given at the earlier hearing was that after having prepared plans and specifications and invited tenders, plaintiffs terminated their agreement with the defendant. It was claimed that defendant made substantial use of the plans and specifications in the preparation of further plans.

Mr. R. A. C. Forrester (Messrs. Forrester and Forrester, Chippenham) was for the plaintiffs, and Mr. G. E. Forrest, barrister (instructed by Messrs. A. C. Dann and Son, Chippenham) for the defence.

Giving judgment the Judge said: Plaintiffs are architects carrying on business at Chippenham and in the northern part of Wiltshire. They have a large practice, and are professional persons of considerable repute. Defendant is a Bachelor of Science who knows a fair amount of building and matters relating to the construction of a house, plans, specifications and so on. In the autumn of 1951 plaintiffs were instructed to build the house which has been referred to in these proceedings. Defendant himself prepared some rough sketches which plaintiffs improved upon and drew up the plans. On 10 January 1952 plaintiffs wrote to defendant sending a plan and asking for observations, also saying tenders had been asked from eight builders. In reply defendant sent the plaintiffs a document which has been referred to as containing 36 points, and his conduct in that has been criticised. He was the building owner. It was out of his pocket that the monies were being produced to pay not only for this house but for the plaintiffs' services. I am bound to say these comments are reasonable. I cannot understand why plaintiffs should take umbrage because the man who has to find the money should criticise, suggest and amend modifications which were being made for the construction of a house for his occupation, and for his satisfaction. The effect of sending in these comments was not very pleasant. The terms of the comments are quite reasonable, but on receipt of those comments plaintiffs wrote a letter which is important, and which I think terminated the contractual relationships of the plaintiffs and the defendant. They write, 'It has become obvious to us that you prefer to be your own architect and supervise the work. We therefore wish to terminate our agreement to act as your architects. We will send on the sealed tenders on receipt of them so that you may deal with them. We will forward an account to you for services rendered in due course'. If that is not a termination of an existing contract the English language has ceased to have any meaning.

Therefore I am concerned with the justification for bringing the contract to an end. I am of opinion there was no justification, but justification or not, it terminated the contractual relationship between the parties. That was the only contract into which the parties entered. That being so, the

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question arises: what were the rights of the parties after the termination of the contract? It has been contended before me that this was a divisible contract. In my opinion it was not so. It was essentially a contract in which the services of supervision of the building continued in accordance with the plans and specifications.

In my view the real explanation of this matter arises from the fact that the plaintiffs' partner, Mr. Edwards, and the defendant could not get on together. Plaintiff was standing upon his professional dignity—was not receptive of any suggestions of any kind. Defendant was perhaps somewhat tactless. He was a busybody. I can envisage him on the site of that house, every day, every hour that he could spare during the construction of the house itself. But the fact that plaintiff and defendant were not people who could co-operate in a task of this kind is no justification for bringing the contractual relationship to an end. Where a contract of this kind comes to an end and no fresh contract is substituted, the parties cannot recover any sum in respect of the contract that has been terminated. Accordingly I am of opinion that here the plaintiffs in fact terminated the original contract and they cannot recover any sum.

It was contended that plaintiffs would be entitled to recover monies in respect of the use which defendant made of the plans and specifications which had been prepared by the plaintiffs. It is beyond contest that defendant used these plans and specifications for the purpose of drawing up other documents which could be used in the building of this house. In my view that was a dishonest procedure. He had no right whatever to steal the work of the plaintiffs in order to do this. His proper course should have been to return to the plaintiffs all their documents, and if he required them, to prepare new documents for submission to the appropriate authorities. The question therefore arises: what rights, if any, have the plaintiffs got against the defendant in regard to these documents? Any right which they acquire must be a right established by some sort of contractual relationship. They cannot succeed on any other footing. Was there any contract between the defendant and the plaintiffs whereby the defendant should pay for the use he made of the plaintiffs' documents? Certainly, as has been admitted, there was no express contract. Can it be said there was a contract by imputation, based upon the fact that defendant made use of the documents? In my opinion, no, and I regret it very much. I wish it had been possible for me to say it was open for this Court to accept that a sum should be paid to the plaintiffs in respect of the use which defendant made of these documents. If the defendant has a spark of honour left in him, he will see that the plaintiffs will receive something in respect of these plans, notwithstanding the fact that the Court has decided in his favour. In these circumstances there must be judgment for the defendant.

Mr. Forrest said an offer was made a

long time ago, and originally accepted, but then plaintiffs changed their mind.

When the Judge asked if that offer would be renewed Mr. Forrest replied in the affirmative, and after consultation with Mr. Forrester it was announced that £20 had been accepted.

Costs were allowed on Scale B.

(Note.—It is understood that there was no agreement or discussion as to fees between client and architect in this case, and the R.I.B.A. Scale of Charges was not therefore the basis of the employment. Had it been, then clause A9 would have been relevant. The question of infringement of copyright was not raised in the case.)

NATIONAL JOINT COUNCIL FOR THE BUILDING INDUSTRY. **Annual and Public Holidays in Building.** At its meeting in London on 8 December the National Joint Council for the Building Industry adopted the Report of the Procedure Committee and decided to record that the appropriate weekly holiday credit stamps payable under the Annual and Public Holidays Agreements would, from the dates indicated below, be as follows:—

Annual Holidays (As from the beginning of the calendar week commencing 4 April, 1955):—

	per week
Craftsmen and Labourers ..	6s. 6d.
Persons (Male or Female) under 18 years of age	5s. 6d.

Public Holidays (As from the beginning of the calendar week commencing 11 April 1955):—

	per week
Craftsmen and Labourers ..	3s. 3d.
Persons (Male and Female) under 18 years of age	2s. 9d.

Rates of Wages and Conditions of Employment for Female Operatives. As from 3 January in National Working Rule 1 include the following additional provision (i) regulating the wage rates of female operatives:—

(i) FEMALE OPERATIVES

i. Standard rate for Women aged 19 and over engaged on craft processes: 10½d. per hour below the Grade A Standard Craft Rate.

ii. Corresponding rate for Women engaged on work other than craft processes: 4d. per hour below the Women's Standard rate in (i) above.

iii. Probationers (19 or over) on craft processes (period of probation 6 months):—
First month and second month: 4d. per hour below the Women's standard rate in (i) above.

Third month and fourth month: 3d. per hour below the Women's standard rate in (i) above. Fifth month and sixth month: 2d. per hour below the Women's standard rate in (i) above.

The foregoing rates shall be subject to the same adjustment as may be made by

the Council from time to time in the Grade A Standard Rate for craftsmen.

ROYAL INSTITUTION OF CHARTERED SURVEYORS. Facilities for Nominated Sub-Contractors. In the Institution's JOURNAL for December it is stated that the Standing Joint Committee for the Standard Method of Measurement have considered a report that some bills of quantities fail to provide sufficient information as to the facilities and services to be provided for nominated sub-contractors by the general contractor.

Having examined specific instances the Committee is of the opinion that 'omnibus' items in the preliminaries of bills of quantities do not meet the intention of the Standard Method. The provisions of preliminaries Clause 7(a) (scaffolding) and 27(a) (attendances) cover fully the requirements of the situation, provided that the general Principles, Section 1, are properly observed.

Such facilities and services as may be required by each sub-contractor should in all cases be given in sufficient detail to enable the general contractor to estimate the extent of the work involved.

LONDON COUNTY COUNCIL. Means of Escape in case of fire. The L.C.C. has now issued a revised Code of Practice dealing with Means of Escape. It supersedes all previous publications and is obtainable at the County Hall or from Staples Press, Ltd., Mandeville Place, W.1, price 6d. net. The Code is No. 3868.

R.I.B.A. FORM OF CONTRACT. Arbitration Clause. In leading Counsel's Opinion if no name is inserted in clause 26 (or in clause 27 of the Local Authorities Form) and the words 'or, in the event of his death or unwillingness or inability to act, of' are not struck out, then the President is unable to appoint an arbitrator in pursuance of the clause.

Members, therefore, are recommended to amend the clause where no arbitrator is named.



Products, Dimensions and Modules

By Bruce Martin, A.A.Dipl.(Hons.) [A], Head of Modular Coordination Studies, The British Standards Institution

A paper read to the Modular Society, 5 January 1955

Short History of Modular Coordination in England. In January 1947 the Council of the R.I.B.A. approved the formation of a study group to consider and report on dimensional standardisation. Four months later a National Study commenced with the setting up of the first technical committee on Modular Coordination by the Building Divisional Council of the British Standards Institution. The first report, B.S. 1708 of 1951, incorporated, with the conclusions reached by the committee, a recommendation for further research into the practical problems involved. Comment on this report was favourable and the Building Divisional Council decided to form a small team to pursue the studies.

Two years ago the Modular Society was formed 'to reduce building costs by promoting research, experiment, development and discussion concerning the use of the module in the design and construction of buildings and in the manufacture of building materials'. The purpose was to introduce modular coordination to the building industry.

Last year teams were set up by the Building Research Station and the British Standards Institution to begin detailed examination of the subject, and the ideas I am concerned with here are the expression of the work of both teams moving towards a common objective. The investigations are parallel and complementary.

Mr. William Allen will deal with the B.R.S. work in a Paper to the Modular Society in March; I now deal with the first stage in the B.S.I. programme: the investigation of modular coordination as a basis for future building standards.

Building Standards. There are now 380 building standards which include 60 dealing with Builders' Plant and Equipment, 70 with Glossaries, Drawing Office Equipment and Technical Considerations and the remaining 250 with Building Material. An early examination of the Building Material Standards showed that they cover not less than 18,000 products and that the relations between these products could not be studied methodically unless some simple pattern was devised which would show their position in the general process of building. This pattern is what we now call the Table for the Coordination of Building Material (see opposite page). My next remarks relate to this table.

Materials. The materials used in the construction of a building undergo a series of processes which may be considered as a sequence of separate stages; in the first instance raw materials are obtained, selected and refined, and the refined

materials are taken to the building site or to a large number of different factories.

Sections. In the primary group of factories the refined materials are processed to produce simple cross-sectional forms. The processing is usually a continuous operation and it is in these factories that the rolled sections, bars, tubes, cables and sheets are made. These sections are then available to the builder on the site or may be sent to a secondary group of factories. Sections are not used solely in building and it should be noted that they have general application in many other industries.

Units. In the secondary group of factories materials and sections are used to produce simple building products which are characterised by small dimensions, simple forms and limited use. They are called units and include bricks, blocks, tiles, slates, fastenings, pipes and their fittings.

Assemblies. In the remaining group of factories, materials, sections and units are used to produce a wide variety of complex products with definite functional characteristics: these are called assemblies and include the heating, sanitary, electrical and gas equipment, the furniture, doors, windows, panels and stairs.

Products. Thus the refined material is converted into three groups of building products: sections, having small cross-sectional dimensions and long lengths, simple forms and a wide variety of use; units having small dimensions in three directions, simple forms and specific use in building, and assemblies having overall dimensions in the order of human scale, complexity of forms and specific use in building.

Functional Components. In combination, building products group themselves into a number of separate functional components: the foundations, structural frames, walls, roofs, services and finishes. These are independent functional systems of assembly and when a number of these are inter-related they make a complete organism or system of building.

Systems of Building. The systems of building are the many different possible arrangements of the functional components or elements.

The Table for the Coordination of Building Material. Thus the complete building process is covered in a table of six vertical columns. On the left are the materials and on the right the completed systems of building: the building process moves from

left to right. Column 1 includes materials, refined materials and their associated production processes: Column 2 sections from the large factories: Columns 3 and 4 units and assemblies from subsequent factory processing: Column 5 work carried out on the site and Column 6 the building during its useful life until its eventual decay and downfall. The table constitutes the complete cycle in which every building is made, built, utilised and maintained. The cycle is continuous and the division into a number of stages is for the purpose of analysis and to provide a common basis for agreement and subsequent study.

People in the Building Process. The people involved in this complete cycle take their places at different stages: associated with Column 1 are the landowners, the importers of raw material and refinery personnel; with Columns 2, 3 and 4 the operatives in a wide range of different factories: between these columns are those concerned with transport. Column 5, the site operations, involves builders, building contractors, sub-contractors, architects, engineers and surveyors, whilst with Column 6 are associated the client and those interested in maintenance, finance and land use.

Meaning of Dimensions of Products. With the completion of the table, it was then possible to begin a methodical analysis of the dimensions of the products described in the existing Building Material Standards and of those outside the Standards. At this stage we had to give a meaning to the dimensions of a product and to distinguish between the actual or overall dimension, the nominal dimension and the maximum and minimum dimensions. The *actual* dimensions of all products have been listed and it is found that each group of products in the table has definite dimensional characteristics.

Dimensions of Sections. In sections, the length is not usually defined and only the cross-section has determined dimensions. In the case of bars, tubes, sections and cables, the cross-sectional dimensions usually lie between 0 in. and 10 in., in sheets the thicknesses lie between 0 in. and 3 in. and widths between 20 in. and 80 in.

Dimensions of Units. Units are characterised by fixed dimensions in three directions which in the case of bricks, blocks, tiles and slates seldom exceed 18 in. Pipes seldom exceed 10 in. diameter with lengths lying between 0 in. and 250 in. Fastenings are generally small and have few dimensions exceeding 10 in.

Table for the Coordination of Building Material

1	2	3	4	5	6
Materials	Sections	Units	Assemblies	Functional components	Systems of building
METALS	BARS e.g. rod	BRICKS e.g. air wall	STRUCTURAL ASSEMBLIES e.g. frame door window stair panel	GROUND WORKS e.g. fencing paving	
STONES	TUBES e.g. conduit	BLOCKS e.g. floor wall			FOUNDATIONS e.g. pile raft
AGGREGATES	SECTIONS e.g. channel trim lath lumber	TILES e.g. roof floor	HEATING EQUIPMENT e.g. boiler cooker		STRUCTURAL FRAMES e.g. shell skeleton
LIMES PLASTERS CEMENTS					WALLS e.g. screen partition
WOODS	SHEETS e.g. slab board quilt panel sheet	SLATES e.g. roof	SANITARY EQUIPMENT e.g. tank bath		ROOFS e.g. pitch flat
PIGMENTS OILS PAINTS		PIPES AND PIPE FITTINGS e.g. drain rain water flue	ELECTRICAL EQUIPMENT e.g. lamp switch		SERVICES e.g. heating sanitary electrical gas
ADHESIVES	WIRES AND WIRE CABLES e.g. cord conductor	FASTENINGS e.g. nail screw hinge lock	GAS EQUIPMENT e.g. mantle meter		FINISHES e.g. floor ceiling wall
BITUMENS TARS ASPHALTS			FURNITURE AND FIRE EQUIPMENT e.g. kitchen office hydrant		

Dimensions of Assemblies. The structural assemblies include frames, doors, windows and panels and these rarely exceed 6 in. in thickness and 100 in. square. Service equipment and furniture dimensions are of the order of 20 in. to 80 in.

Dimensions and Form. While tabulating dimensions of products, we came to realise that our studies would have to take into account shape as well as size. In fact, the science of modular coordination concerns the effective joining of building products and will include the whole range of products, their form and shape, the way they fit one to another and the selected dimensional pattern that will make joining methods effective. Modular coordination depends ultimately not only on the size of the product and its dimensions but also on whether it fits and does its job. This does not mean that dimensions are insignificant, rather that the shape of the object and its relation to its neighbours are of first importance. The effective joining of tradi-

tional building units is their most notable characteristic, whilst newer products are equally distinguished by the complexity of their arrangement in any general system of assembly. Today building products can seldom be simply joined or fitted into a wider pattern of building and consequently are to a disturbing degree ineffectual. For example, although large numbers of corrugated sheets exist having the same overall dimensions, their profiles are unrelated. Without effective building products there can be no efficient building, for organised and sequential building operations depend on the division of the building into articulate parts capable of being fully related to each other.

Dimensions of Products. The tabulations of dimensions of existing rectilinear products showed that in the range 0 in. to 100 in. about 200 separate dimensions exist and several of these occur many hundreds of times. We were led therefore to study how these dimensions came to be attached to

their respective products. This study is still under way and at this stage I will only mention the people to be consulted. The dimensions of building products would appear to be determined by anyone engaged in the building industry. Each member of the building team may influence the dimensions in the light of his own requirements.

Manufacture and Product Dimensions. The manufacturer is primarily concerned with the factory processes, the machinery involved and the nature of the material to be processed.

Construction and Product Dimensions. The builder is mainly concerned with ease of transport, stacking, handling and assembly.

Use and Product Dimensions. The user's prime concern is the relationship of the product to his own size: the door handle and bath tap to fit his hand, the door and window to suit his overall dimensions, and

the furniture and equipment closely related to his body.

Design and Product Dimensions. The architect is concerned with the relation of the parts to the whole: the dimensions of the products in relation to the dimensions of the design.

Simplification. The simplification of building products is a selective process aimed at simplicity of design, reduction of unpopular types, elimination of unnecessary ones and creation of necessary variety. It is now generally agreed that simplification is a necessity for an efficient industry. If we apply this process to the dimensions of building products in industrial production, then we have to select dimensions by reducing the unpopular and little used, by eliminating the unnecessary and unused, and by creating a necessary and varied range for general use.

Modules. These selected dimensions become modules. They are the basis for any form of modular coordination and not only help the effective joining of the parts, but also facilitate the planning of the building.

Selection of Modules by the Architect. When considering the design of a building and the parts to be used for its construction, the architect has, broadly speaking, three courses open to him.

First, he can design the parts specially for the job in hand, settle their dimensions and make arrangements for their subsequent manufacture. This generally involves lengthy correspondence and discussion between designers and manufacturers resulting in a long and expensive design period, which is repeated for each job.

Secondly, he can design the parts for a particular system of construction and relate them to certain selected dimensions used throughout the design. This is the method adopted in the case of many of the school programmes. It leads to standard parts, and standard details which are common to a particular architect and the associated manufacturers. Within such a group, simplification is achieved, but it takes a long time and considerable effort to reach a fully satisfactory set of parts. For the architect, change is difficult to make and for the manufacturer the market is limited to those using the system. But the parts are common to many buildings; and compared with the first method there is a saving in time at every stage of the building process.

Thirdly, he can utilise parts that have already been designed and related to modular dimensions. To do this he must adopt predetermined modules for his design. He must be ready to choose dimensions from a limited range of numbers instead of from all possible numbers. By so doing, he will eliminate the need to design and dimension the parts, reduce the details of jointing to a few simple cases, be able to obtain the parts from a number of manufacturers, and

speed up manufacturing, ordering, delivering and assembling. Furthermore, when other architects are prepared to choose their modules from the common range of numbers, the market for the products will increase, leading to more efficient production and an increasing variety of modular parts. As with languages the use of a common vocabulary will bring about its own fruitful development.

Modules to be Related. If the largest variety of products is to be used in different constructions and for different programmes then the various modules must be related to one another.

Relation of Modules. In the American A 62 proposal for modular coordination there is a basic module and all dimensions are multiples of this module. All existing product dimensions are re-located to the nearest mark on the 4-inch scale, but there is no basis for selection of particular dimensions and only limited simplification is thereby achieved. Too many dimensional variations are possible and there is no assurance either that the selected sizes are properly related to particular products or that they are harmonically inter-related.

In the German Standard Building Numbers the dimension one metre is chosen and all building numbers are factors of the metre. In both the German and American methods, a number or dimension has been selected and all dimensions based upon it; thus the dimensions are evenly spaced upon the range 0 in. to 100 in. and form an arithmetic series.

By contrast the dimensional pattern of building products indicates a relatively large number of dimensions in the lower and progressively fewer in the upper range. This suggests a geometric series as a basis for relating the modular numbers. Le Corbusier's 'Modulor' is, of course, a particular kind of geometric progression with a common ratio of 1.618; the Engineering Series, known as 'Preferred Numbers', or Renard Series, are also ranges of numbers having a common ratio. Since it may be desirable for the numbers to have a common factor as well as to be related by a common ratio, numbers that exist simultaneously in arithmetic and geometric progressions will require study.

At the same time, we must bear in mind the fundamental numerical relationships between the numbers since building products related to these numbers will greatly affect the appearance of our buildings. These building parts will form the subject of our revised modular standards.

Need for Product Standards and Performance Standards. Within a modular number pattern there should be a full range of standards devoted exclusively to the complete description of particular building products. These products need to be designed to fulfil a clearly defined need, suitable for full production and stocked to be available on demand. There must be a clear division between a standard that determines the performance of an electric light switch and that which lays down a

worthwhile design; whilst it is essential to have a 'performance' standard there must also be a 'product' standard. Such standard building products will be based on related modules to allow of optimum standardisation combined with the greatest variety of assembly methods. They will constitute a basic vocabulary of dependable products for building.

Future Tasks. This is necessarily an interim report, since it covers only the first year of the B.S.I. studies. At the moment there are two main tasks in hand. Phase I of the European Productivity Agency Project No. 174 Modular Coordination is under way and the Reports being prepared in twelve countries are to be submitted in May 1955 and will cover building products, theoretical data, research programmes and practical applications. Parallel with this project, the work of our research teams continues and is directed towards the immediate objective: the determination of a number pattern for building modules.

Book Reviews

The House and the Art of its Design, by Robert Woods Kennedy. (Progressive Architecture library.) 9 in. ix + 550 pp. incl. pls. text illus. New York: Reinhold Publ. Co. 1953. £3 12s.

Americans have a penchant for elaborate analyses of seemingly simple subjects. The author of this book devotes 540 pages, excluding references, acknowledgements and the index, to a study of the organic-modern, tailor-made house for the middle-income American family. What we call housing he sweeps aside with a few contemptuous references to 'dwelling units' which he assumes are put up *en masse* by the Federal Housing Administration or by speculators. He is equally hard on the rich for whom 'a house with a lineage is more important than personal creativity or modernity'.

Those two words 'creativity' and 'modernity' epitomise Mr. Kennedy's outlook. It seems that the client ought to have created for him by his architect a highly personal setting, exactly suiting his family, and that, at all costs, this setting must be 'modern'. What happens as the family changes in size and interests, or when the client dies and the house comes on the market, Mr. Kennedy does not say. There is no recognition of the fact that many clients consciously wish their houses to be designed as saleable assets.

After defining and discussing its narrow field of study, the book continues with a lengthy pseudo-psychological, but none the less amusingly written, analysis of the middle-income American family. There follow five chapters of useful discussion of dwelling-house functions. This part, though diffuse and over-wordy, is for us the meat of the book. It could be read with profit by all those architects and students who suffer from the delusion that house design is a simple matter. The remainder of the

book is a mixture of aesthetic theory and a partisan contribution to the modern-versus-traditional battle which American architects still seem to be waging among themselves.

Mr. Kennedy has an irritating trick of producing with a flourish some long-accepted canon of planning as if it were new. For example: 'Once one has closed the bedroom door, the first need is that of visual privacy for undressing, love-making and sleeping. The first way to achieve this is to design the door to open in, and in such a way that it comes between the person entering and the bed.' This was more tersely and perhaps better expressed by the old country builder who many years ago said to the reviewer, 'I hung the door to shun the bed'. Occasionally there are descents into the banal, such as: 'The essential condition to taking a bath is nudity.'

The book contains several vast and closely-detailed lists of objects for which storage space has to be found and one is rather staggered by the suggestion that the American woman requires 146·25 cu.ft. of space for storing her clothes. The list of things given as the 'average' woman's wardrobe is likely to arouse incredulous envy in the heart of an Englishwoman. Against this, the American male is said to need only 29·63 cu.ft. Incidentally, why the two places of decimals?

What has this curate's egg of a book for English architects? Much sound thinking on those minor details of the house which many of us are liable to ignore; some good advice on architect-client relationships; many interesting, amusing and telling illustrations.

ERIC L. BIRD [4]

The Pleasures of Architecture, by Clough and Amabel Williams-Ellis. [2nd ed.] 8 in. 224 pp. + (16) pls. and pp. of illus. text illus. Jonathan Cape. 1954. 16s.

Mr. and Mrs. Williams-Ellis have republished a book which they first produced in 1924. It is, however, almost wholly rewritten to bring it into harmony with their views today; and in doing so I feel they have sacrificed a period piece which it was both instructive and fun to read. While assuming that there has been in the last thirty years a general trend towards better design in all the things that we use, the authors aim at a wider appreciation of good buildings. They hope for a stronger rapprochement between architects and the public.

This book should contribute towards the fulfilment of that hope; but the discussion covers so wide a field that the 'pleasures' of architecture become rather dimmed. There is, for instance, the usual review of the Victorian period and its horrors, crisply done; then some nice comment on modern work, summed up as 'the kind of architecture the good adolescent sons and daughters of a bad old rake might have evolved'. They hope it will grow less tense and serious and 'add to its many virtues the ability to feel comfortable, to play, to take a joke and to get on with its neighbours'.

That is admirable. What follows is less telling. We are given an analysis of criticism, with a re-statement of much that Geoffrey Scott so clearly promulgated; then some witty comments on 22 architects from Brunelleschi to a hypothetical modern. There is, as well, an essay on planning in which we are advised to put the hot water tank in the linen cupboard.

But architects will enjoy the last chapter, with its thoughts on our position today. The authors say rightly that the interest of a small aesthetic fashionable public is not enough and that our patronage should come, in these enlightened times, from a whole more educated people.

There are 26 photographs at the end. One of them, under the caption 'Provincial Baroque', shows Mr. Williams-Ellis's best building, the Bishop's Stortford College Memorial Hall.

A. S. G. BUTLER [F]

Architects' Working Details, edited by D. A. C. A. Boyne. Vol. 2. 160 pp. incl. (148) pls. Architectural Press. 1954. £1 1s. This second volume of Architects' Working Details has the same twofold purpose as the first volume, to provide accessible solutions to everyday design problems and to record the stages which the study of such problems has reached.

The examples have been selected from the series of 'Working Details' which appear in THE ARCHITECT'S JOURNAL and are given under the headings Windows, Doors, Staircases, Walls and Partitions, Roofs and Ceilings, Balconies, Covered Ways and Canopies, Heating, Lighting, Furniture and Fittings. Each of the seventy-four details is illustrated by a photograph and working drawings. The photographs are excellent; the drawings not always so, for they have been simplified to an extent which, in some cases, makes them difficult to follow.

The availability of a set of standard solutions is attractive as an idea; in practice, they seldom provide a solution to the problem with which the architect is faced and, when used by the student, may result in unintelligent copying which does him more harm than good. Of the twofold purpose that this work is designed to serve, the first should therefore be discounted, but the second is admirably fulfilled

A. B. WATERS [F]

Les Chantiers des Cathédrales, by Pierre du Colombier. 11½ in. by 9 in. 145 pp. + 19 text illus. + 32 collotype pls. Paris: Picard. 1953. 2,400 frs.

This is an attempt to summarise, for French readers, the whole subject of mediaeval building. Restricted to sources already in print, it is remarkably up-to-date: published in 1953, it utilises articles from foreign periodicals issued late in 1952. The useful bibliography comprises 178 items, of which 38 are in English, 36 in German, and 9 in Italian. It is gratifying to find English works extensively quoted throughout, and the debt owed by students to German and English workers is warmly stressed in M. du Colombier's preface while the book is distinguished by an

international viewpoint rare in the works of French historians.

The five chapters cover a detailed discussion of finance, transport and plant; patronage and organisation; labour; the architect; and the sculptor, whose anonymity in the 13th century M. du Colombier exaggerates, owing to his dependence upon printed sources. To these chapters are added three appendices, on bridge building, masons' marks, and the Quatuor Coronati, this last the best treatment of the subject that has yet appeared.

The principal chapter, on the mediaeval architect, gives on the whole a satisfactory picture, though the author tries to have it both ways on the knotty problem of clerical architects. He uses Perrault, Inigo Jones, Wren and Vanbrugh (architects without technical training) to belabour those who, 'chaque fois qu'ils voient attribuer, dans un édifice, un rôle prépondérant au patron —surtout si le patron est un ecclésiastique— cherchent tous les arguments possibles, au risque de torturer les textes, pour le dépouiller de cette gloire.' None of the four architects named lived in the Middle Ages, none was a cleric, none was patron of the works which he designed. While it is true that a few patrons and a few clerics have been architects, in the Middle Ages as in other periods, the rejection of clerical patrons as *normal* mediaeval architects does not rest primarily on their lack of technical knowledge (a negative proposition admittedly difficult to prove), but upon the preponderant mass of evidence that, in the instances where positive facts are available, the architect was a master craftsman.

The most valuable feature of the book is its large series of excellent plates. Most of the subjects are already well known, but few of them have been hitherto so finely reproduced, and the careful selection deserves the highest praise.

JOHN H. HARVEY

Neues Bauen in Italien. New Ways of Building in Italy, by Paolo Nestler. 11½ in. 210 pp. incl. pls. and pp. of illus. text illus. Munich: Callwey. 1954. D.M. 39.-.

This well arranged picture book gives a comprehensive idea of Italy's new architecture. Since the war most building in Italy has hardly been architecture, and it is therefore the designs of a minority which are illustrated here. In an extensive preface decanted, too straight for enjoyment, into English, French and Italian, the author describes the early fits and starts of the modern movement in Italy: first the assumed decoration of the Jugendstil at the turn of the century, followed ten years later by the uncompromising manifestos of the futurists destined to come to no immediate fruition by the First World War, and practically submerged afterwards by the spate of neo-classicism demanded by the rising Fascist Party.

It was not until the end of the twenties that the 'rationalist' architects, embracing a functional approach to architecture, attempted an organised opposition—they devoted their energies to smaller buildings and interiors where they were assured of a

free hand, and produced logical solutions using modern methods of construction. Their Rome exhibition in 1931 satirised the 'traditionalists' a shade too venomously. These architects, backed by the Fascists and the Academies, hit back, splitting their ranks and dissolving their societies. In spite of this, the 'rationalists' continued to build works that were very restrained and unadorned, befitting the proselytes of a persecuted cause, but these activities ended with the Axis.

The illustrations give the latest instalment of the interrupted story. The first section shows luxurious 'multiple family houses with tenant-owned flats'—the 20th-century solution of the town palazzo. Luccichenti and Monaco, encouraged by well-heeled clients, exploit and experiment with the latest cosmopolitan clichés. Moretti's 'new baroque' has a fair showing. Next there is a good selection of country and seaside houses, shades of Mies and Lloyd Wright. In the blocks of flats and housing schemes following, Scandinavian influence can be detected. The Tuscan vernacular of Ridolfi is scantly illustrated. In 'offices and industrial plants' some neo-classical examples are mixed with pure functional designs. There are some exhibition buildings in the next section—Rome station is shown but empty and thus lacking the sense of scale created by the throng of passengers. 'Hotels, restaurants, sports pavilions' have about a page apiece.

After a few examples of new schools, the book ends with Vaccaro's church at Recoaro-Terme. In this building of reinforced concrete, rubble and marble facing, there are reminiscences of San Miniato, but it is by no means a Romanesque revival. This traditional handling of marble in a modern building reveals a trend that can be seen in other work—mosaic is used with telling effect in Moretti's flats, for instance. For however much these architects may despise superficial 'revivals', in their strivings to find the architectural answer to contemporary problems, they love and respect Italy's great building tradition. After a period of reaction against the past, they now seek to distil its essence in order to endow their present efforts with a distinctly Italian flavour.

ALICE HARTER

A New Map of the World. The Trystan Edwards Homalographic Projection, by A. Trystan Edwards. 8½ in. 18 pp. incl. folded map. text illus. Batsford. 1953. [1954]. 5s.

Europe is a third of the size of Africa, but in Mercator's distorted Projection it appears much larger. This new map comes much nearer to being homalographic, i.e. 'delineating in equal proportion'; as it is written by a layman (and architect), architects will understand it.

Write What You Mean, by R. W. Bell. 7½ in. 116 pp. Geo. Allen & Unwin. 1954. 7s. 6d.

Style is not merely its own reward; the value of setting one's thoughts in order and using functional language to express them

is understood no better by the business man than the civil servant. The author follows Sir Ernest Gowers, who has written the foreword, in attacking woolly language and demonstrating that shorn English is more elegant as well as more precise. Business-English users, please note.

The Modulor. A harmonious measure to the human scale, etc., by Le Corbusier, Peter de Francia and Anna Bostock, trans. 7½ in. x 7½ in. 243 pp. incl. pls. text illus. Faber. 1954. £1. 5s.

There have by now been many reviews of Le Corbusier's Modulor, and there must be many people who, by now, understand the way in which Le Corbusier has produced a system based on the golden section; or (Fibonacci) series of proportions related to human body positions, assuming a standard man 6 ft. in height. He has, as it were, given a pitch to his system, even as it was necessary in music to standardise a number of vibrations for Middle C in order that all the orchestra could be in tune. Messrs. Faber and Faber are to be congratulated on the good typography and excellent presentation of the book in English. Translators have obviously had a difficult job which they have done well, but somehow Le Corbusier's French does seem extremely difficult to translate, and it is still much better to read him in French.

The book itself is not, I think, one hundred per cent clear. It is a combination of giving one necessary information about the Modulor, and 'missionising' to make people use it. The translators have left most of the measurements in French which, I suppose, was inevitable, but which does not ease the task of English readers.

I have had personal experience of working with the Modulor. It is a very handy instrument, and I am convinced of the value of related proportions based on the golden cut in architecture. I do not think it is the only system of proportions, but it is a very good one and not only does it give good related proportions, but there is obviously great practical advantage in adopting this system where modules are used, rather than purely arithmetic systems of proportion, often based on nothing more than the fact that they constitute easy arithmetic. It is, as Le Corbusier has written, in the new world of space a working tool.

No doubt someone will one day write another book which will explain clearly to people how to use the Modulor without giving so much information as to how Le Corbusier has used it, or so many personal anecdotes. Though these are of interest, they serve, to my mind, to obscure rather than to clarify the issue. Needless to say, the discovery itself is of very great value; being one of the greatest discoveries, architecturally speaking, of our age.

JANE DREW [F]

The Planning of Industrial Location, by Peter Self. (Town and Country Planning Assocn.) 8½ in. 47 pp. Univ. of Lond. Press. 1953. 2s. 6d.

New towns must be worked in, as well as slept in: industry must be attracted or

coerced into them. Mr. Self explains this clearly, without much jargon, and makes some constructive criticisms of lukewarm action in Government departments, particularly in the Board of Trade and the Ministry of Town and Country Planning.

English Cottages and Farmhouses. Text by Olive Cook; photographs by Edwin Smith. 12 in. 50 pp. incl. pl. + (273) plates and pp. of illus. + endpaper, maps and lists. Thames and Hudson. £2. 2s.

It is a most difficult task to assess the value of this book. A companion volume on English Parish Churches illustrated by the same skilful photographer presents a complete contrast in that it treated its subjects as architecture, not only consistently but so intelligently that their characteristic beauty was caught unerringly and communicated to the eye. English domestic architecture, in manor-house, farm and cottage, has also a quality that is superlative not only in the masterly handling of the simple elements of its structure but also in its faultless setting in the countryside. But only fitfully do we find in this book the serene beauty of our unspoiled villages or the homesteads set beside our pleasant lanes. The producers seem to have lost their way or perhaps they have not realised what there was to seek.

There is, however, a rich variety in these photographs which cannot but give pleasure to those who idly turn the pages. Barns are numerous and evidently favourite subjects; some almshouses occur (not too flatteringly), curiosities abound and there are many interiors of cottage rooms. The last-named give a sociological tint to a kaleidoscopic survey in which the buildings themselves are too often shown uncomfortably in order to bring in agricultural implements or some other element of merely incidental interest. The notes, like the pictures to which they relate, are discursive and disconnected.

The book would really seem to have been mis-named. English cottages and farmhouses are not in fact the welter of untidiness and neglect that they are frequently shown here, nor are English skies always lowering with the darkness of approaching storms. The authors have perhaps been too much obsessed with the desire to dramatise the commonplace to paint a faithful picture of what English country life has given us of architectural distinction and lasting beauty.

WALTER H. GODFREY [F]

How Things are Made: A House, by C. Bertram Parkes. (ESA Information book.) 8½ in. x 6½ in. viii + 95 pp. incl. pls. + endpapers. text illus. Educational Supply Assocn. 1954. 5s. 6d.

Attempts by architects to explain architecture or building construction to children are commonly patronising or didactic so that the young intelligence is either insulted or stunned. Too few authors of books like this one realise that different age groups require quite different treatments, ranging from the nursery rhyme mentality to the adolescent, the latter often having greater

intelligence than many adults. Mr. Parkes aims squarely at the nine to eleven age group and hits his target with precision. He assumes two children of these ages whose parents build a house and he describes in story form how it is done. He succeeds in explaining simply many matters which are abstruse to the child mind such as the meaning and purpose of a plan, what the architect does and why, brick bonding, dampcourses, trimming of joists, the hot water circulation, and even such things as soakers, flue design and the theory of triangulation in roof structures. He does so by numerous clear line drawings and photographs, but especially by an easily comprehensible text which does not demand the sudden jumping of high mental fences—the sort of text which looks simple but which is in fact very difficult for an adult to write. His characters include an intelligent male parent as client, an architect not above explaining his work to children, and a general foreman who, although gently reprimanding the children for playing with a pile of facing bricks, is willing to devote much of his employer's time to explaining things to them—perhaps a slightly unnatural figure in the building industry. This book, especially in view of its remarkably low price, could well be an official textbook in all primary schools because it deals with one of the basic elements in social life, the dwelling house.

E. L. B.

Rome, by Martin Hürlmann. 9 $\frac{1}{2}$ in. 144 pp. incl. (64) pls. and pp. of illus. Thames & Hudson. 1954. £1 1s.

Following his illustrated works on cathedrals, this graphic contribution by Mr. Hürlmann on an inexhaustible theme will give pleasure. The arrangement is excellent, each plate having descriptive notes opposite. The book covers the monuments of the various periods proportionately to their number—many of ancient buildings, a few of early Christian and mediaeval, and a predominant number on Renaissance (using this term in the wider sense); fountains, obelisks, city walls and gates, bridges, and sculpture generally receive their share of attention. The photographs are good, though some were evidently taken before the clearances of, e.g., the Theatre of Marcellus area and the reconstitution of the Temple of Venus and Roma—all carried out under Mussolini; one of them does show the Via dell' Impero. The text notes are terse and appear to be accurate; the statement relating to San Lorenzo fuori le Mura, however, that the earlier (eastern) half was 'built by Constantine . . . and renovated in the sixth century; in the fifth century . . . another basilica [was built] close by, and the two churches were united in 1216' is ambiguous: 'renovated' should read 'rebuilt' and 'close by' should read 'to the west.' (This church is notoriously vaguely documented!) There are a chronology of events and indexes of persons and places referring usefully to plate numbers.

H. V. M. R.

Time-Saver Standards. A Manual of Essential Architectural Data etc. Architectural Record book. 3rd ed. 11 in. \times 8 $\frac{1}{2}$ in. vi + 888 pp. incl. pls. text illus. New York: Dodge Corp. 1954. \$12.50.

No selection from the list of contents of this encyclopaedic work would be enough to indicate its scope. It provides basic detailed information, compiled by experienced architects and technical experts, on a prodigious number of building problems. The publishers' intention is to offer 'both design principles and their applications'.

For the new edition, which supersedes the second (1950), old material has been cut out and much that is new added.

Architects' Detail Sheets, Edward D. Mills, editor. Second Series. 11 $\frac{1}{2}$ in. \times 8 $\frac{1}{2}$ in. 228 pp. incl. pls. and pp. of illus. Architect and Building News. 1954. £1 5s.

This is a new selection of 96 sheets of details published in THE ARCHITECT AND BUILDING NEWS. A first series, under the same editorship, appeared in 1952. Consisting of scale drawings and photographs, it reflects the work of some seventy designers in many countries.

Walter Gropius: Work and Teamwork, by Sigfried Giedion. 10 in. iv + 249 pp. incl. pp. of illus. Architectural Press. 1954. £2 2s.

In the year of Walter Gropius's retirement Dr. Giedion has put his achievement on record. He has done so in some detail—recording the trivial and the fundamental with an impartial lack of discrimination—and furnishing the whole with over 300 excellent illustrations, in themselves a concise summary of the course of the Modern Movement during the last thirty years. Dr. Giedion—or Miss Tyrwhitt as his translator—must be congratulated upon the clarity with which the story of Gropius's career has been told. Both the American and the Teutonic verbosity that are so wont to mar the work of CIAM writers—Gropius included—are here barely discernible.

As one turns over the plates of this book it is difficult to decide whether Gropius made the Modern Movement or was merely one of its more distinguished products. One must, in fact, draw a clear distinction between the earlier work—Werkbund Exhibition, Fagus factory, Bauhaus, etc.—and the later Massachusetts houses and schools, Harvard Centre, etc. The distinction is not just the difference between the buildings of one era and another; in the earlier work Gropius was a young and sensitive pioneer, filled with his vision of a brave new world and not afraid to cause a sensation in a dying society; in the later work he is a distinguished architect among his peers. The early work may not be 'better' than the later, it will always have more significance. Gropius's buildings today are in the first rank; they exhibit the excellencies—as well as some of the weaknesses—of our Modern Movement. They are hardly the basis for Dr. Giedion's hero-worship; that

must rest now, as twenty years ago, upon that one supreme educational concept—the Bauhaus Idea,' that great move 'forward from Morris' towards mastering the machine rather than despising it.

With the passing of the years Gropius's work has gained in quality, in sureness of touch, and has lost brashness. The Fagus factory is obvious juvenilia compared with, say, the Harvard Centre; but while the Fagus factory was a lonely outpost in an alien world, the Harvard Centre can be matched by a dozen other buildings by a dozen other architects. That in itself, however, is also a sign that the Gropius cause, after nearly half a century, has triumphed. It was right and proper that this triumph should be made clear. Dr. Giedion has in effect, and on behalf of us all, paid homage to a great figure in the world of education, design and building. One's only regret is that the homage did not come from this country.

R. FURNEAUX JORDAN [F]

New Ways of Servicing Buildings. Eric de Maré, ed. [Articles by John Bickerdike and others.] 9 in. \times 7 in. 228 pp. incl. pls. and pp. of illus. text illus. Architl. Press. 1954. £1 10s.

This is a companion volume to *New Ways of Building* and deals chiefly with service equipment and finishes. Three of the chapters also include a discussion of the general principles underlying lighting and heating installation. Each of the six sections is written by a separate author who has specialised in the subject.

John Bickerdike reviews in detail the principles of lighting, lighting installation and equipment in what is probably one of the most comprehensive surveys to date. In a long, well illustrated chapter he summarises present knowledge. He seems to be acutely aware of the influence of lighting on human actions and reactions, and emphasises the need to base the design of lighting upon the knowledge of human behaviour.

The 'Heating of Larger Buildings' and 'House Heating' are dealt with by J. R. Kell and C. C. Handasyde respectively. They briefly discuss general requirements and detail the various systems and types of equipment that are now being introduced. Both authors make it quite clear that the building and its heating system are to be regarded as one machine and emphasise in consequence the importance of thermal insulation, thermal capacity of the building, methods of dealing with ventilation, and district heating.

The chapter on 'Sanitation, Plumbing and Hygiene', by H. G. Goddard, has a most interesting layout, since it traces as a logical sequence of events the supply of water to the building, the fittings in which water is used, the methods of removing the water with waste products and, finally, the methods of disposal. The idea is good, the result is excellent and there are many valuable comments on recent development. For example, it appears that in the two-storey dwelling with a one-pipe system the vent stack is unnecessary and that pitch-fibre drain pipes 8 ft. to 12 ft.

long, needing no jointing or preparation, are now available in this country.

'Interior Finishes' are examined by Kenneth Cheesman, who provides a comprehensive analysis of the many kinds of sheets, boards and other finishing materials.

Finally, there is a short section by Philip Scholberg dealing with electrical equipment and partitions.

This book should be of special value to the practising architect, since it contains a great deal of basic factual information, supported by 192 well-chosen illustrations and diagrams. At the same time I have the impression that each of the authors has written his chapter unaware of his co-authors' efforts. This is, in fact, six books for the price of one.

BRUCE MARTIN [4]

St. Andrews, by *Russell Kirk*. (British cities and towns series.) 8½ in. 192 pp. incl. pls. and pp. of illus. Batsford. 1954. £1 1s.

St. Andrews has always been in need of a readable book about it. The town is historically interesting, because it was the seat of power of the Catholic church in Scotland and consequently fell heir to the bloodiest struggles of the Reformation. Many of its buildings have antiquity and quite a number have beauty: the town as a whole has great charm, though little enough is done to add to it these days.

Russell Kirk's book is largely about history, and the buildings of the town come into the story less on their own account than as the homes of his other interests. They come in well enough nevertheless, and the usual Batsford range of good illustrations mainly concerns them.

As a book it is readable but wanders, so that it becomes difficult to form in the mind a collected story of people, events and buildings. It seems likely that a very short history of the country as a whole would help the non-Scottish reader, and there could with advantage be a clearer segregation and better balance of politics, architecture and golf.

W. A. ALLEN [4]

Structural Theory and Design, by *J. McHardy Young*. 2 vols in 1, 9½ in. ix + ix + 599 pp. + (note) leaf. text diag. Crosby Lockwood. 1954. £1 10s.

This useful reference book, which appeared in two volumes in 1951-52, and was reviewed in the JOURNAL of February 1952, has been reprinted in one volume at little more than half the original price.

Sanitation, Drainage, and Water Supply, &c., by *G. Eric Mitchell*. 5th ed. 9 in. 208 pp. incl. pls. text illus. Newnes. 1954. 17s. 6d.

The fifth edition has been brought up-to-date, so as to include the current Model Byelaws, as well as particulars of new materials and methods.

The Public Health Inspector's Handbook, etc., by *Henry H. Clay and Ronald Williams*. 8th ed. (of The Sanitary Inspector's Hand-

book). 8½ in. xx + 608 pp. Lewis. 1954. £1 10s.

The Sanitary Inspector no longer exists, and so it is the *Public Health Inspector's Handbook* which now appears in an eighth edition. It is brought up to date from a

legal point of view, revised, and includes additional matter on such subjects as smokeless zones, nursing and similar 'homes', the 'single-stack' system of drainage and thermal insulation of buildings.



The Craft Guild of the Hertfordshire Chapter of the Essex, Cambridge and Hertfordshire Society of Architects

ALMOST EXACTLY a year ago, the members of the Hertfordshire Chapter of the Essex, Cambridge and Hertfordshire Society of Architects formed a craft guild for the purpose of making craft objects for sale in aid of the funds of the Architects' Benevolent Society. Noticing that many members occupied their spare time with some kind of handicraft, Mr. R. Owen Vine [4], the Hon. Secretary of the Society, put forward to his local Chapter the idea that this recreational work might be organised for the benefit of the A.B.S. The response was immediate, the Guild was formed almost at once and, up to the present, the funds of the A.B.S. have benefited to the extent of £50. In addition, the Guild presented the three objects here illustrated as prizes for competitions at the Annual Ball of the A.B.S. held on 9 December last.

The field of craftsmanship which the Guild covers is very wide. The original "prospectus" listed the following types of work: woodwork, wood turning, wood carving, marquetry work, metal work, metal spinning, metal turning, techniques involving welding and brazing, repoussé work, plastic turning, plastic moulding, plastic sculpture, canework, weaving, water colours, oil painting, pastel work, black and

white, etching, sculpture, photography, carpet weaving and tufting, leatherwork, glass blowing, sand blasting, brilliant cutting.

This praiseworthy effort by Hertfordshire members, which has the blessing of the A.B.S. Council, may perhaps appeal to other Allied Societies. Even if few architects indulge in the pleasures of such unusual crafts as metal spinning, repoussé work, weaving and glass blowing, most of them make pictures in water colours, oils, black and white and by photography; quite a few try their hands at woodwork and sculpture. A little organisation to collect and sell locally such objects for the benefit of the architects' own charity seems worth while. Friendly shopkeepers may be willing to assist—perhaps for a small commission. And there is always the 'sale of work' as a time-honoured means of raising funds for charitable causes. Alternatively, the Herts Guild would welcome co-operation with individual architects in other parts of the country. The Hon. Secretary, Mr. R. Owen Vine [4], Tudor Chambers, Station Road, Wood Green, N.22, would be glad to hear from any members who are interested in the scheme and willing to offer their services.



THE FOLLOWING LETTER has been sent to all members and Students in the United Kingdom:

4 January 1955

Dear Sir or Madam,

Representation of Members and Students in Salaried Employment for the Purpose of Negotiations on Conditions of Service and Salaries

You may remember that a letter and a summary of a report on this subject were sent out to all members and Students on the 1 March 1954. Following their study of these matters, the Council have directed me to send you this letter embodying their observations.

The Background. It will be appreciated that the Council have at all times been actively concerned with the welfare of salaried members, and in 1928 a standing committee for that purpose was set up. That committee was subsequently given representation on the Council. Much of the policy accepted today is due to the efforts of that committee and the Council. The generally accepted principles that departments of public authorities responsible for architectural work should be under the separate control of an architect and that the professional status of a salaried member is in no way different from that of a private practitioner are two important examples. In 1946, a senior member was added to the staff of the R.I.B.A. for the special purpose of advising on questions of status and salary for those in salaried employment and for maintaining a general liaison in regard to these matters with the secretariats of the leading organisations representing employees of all professions. The R.I.B.A., of course, is already consulted from time to time in connection with the periodic review of the grading and remuneration of architects in central and local government service and some statutory undertakings.

The 1954 Questionnaire and Action arising therefrom. The summary mentioned above referred to the study which the Council had been giving to this matter, and attached to it was a questionnaire form designed to enable the Council to assess with some accuracy the extent of the demand for additional machinery for the representation of salaried architects. An analysis of the replies was carried out by expert statisticians and a summary was published in the R.I.B.A. JOURNAL for May 1954.

Approximately half the total member-

Negotiations on Salaried Employment

ship replied, and of these roughly two-thirds expressed themselves as in favour of some further machinery, though from comments added to the forms it appeared that a number of members were still under some misapprehension: they thought that the R.I.B.A. itself could assume the role of a negotiating body on full trade union lines and obtain recognition for negotiating purposes from the various joint councils, committees and employing authorities. Members are reminded that, as pointed out in the summary, this would not be possible under the terms of the Royal Charters, nor would the R.I.B.A. be likely to obtain full formal recognition from those organisations.

Of those replying, 63 per cent, made up of 26.1 per cent who were already members of an existing trade union body and 36.9 per cent who were not, expressed themselves as willing to join a new one if set up, while 37 per cent, whether already members or not, expressed themselves as against a trade union in principle. At the same time, the statisticians warned the Council of the need for caution in extending any interpretation on these lines to the 50 per cent of the total membership who did not reply to the questionnaire.

On the evidence before them, the Council decided that there were grounds for further investigation, though there was some doubt in their minds as to the degree of support that might ultimately be forthcoming if any new organisation were to be set up. It was their opinion that in the complex field of negotiations of conditions of service and salaries any organisation which already enjoyed a measure of recognition and had a trained staff and experience of the work would have great advantages over any newly created body.

They accordingly arranged as a first step for discussions to be held with representatives of the Association of Building Technicians. The object of these discussions was to see whether the organisation of that body might be so modified that it would become exclusively representative of architects, and at the same time become recognised as the appropriate representative body of the profession for all negotiating purposes. Full and friendly discussions were held between representatives of both sides. While the R.I.B.A. requirements as to exclusive membership could possibly be met in the course of time, there appeared to be little prospect of the Association of Building Technicians achieving in the future any more substantial recognition in the established negotiating machinery than it had been able to obtain in the past 25 years.

The prospects of any new body to be set up would be far worse as it would start without the advantages of the Association of Building Technicians' past experience and organisation. Under existing conditions, the influence of any negotiating body is broadly proportional to its numerical strength. A union exclusive to

architects would be too weak numerically to compete with the existing and well-established multilateral organisations, such as the National and Local Government Officers' Association and the Institution of Professional Civil Servants. Not only must these organisations be expected strongly to oppose any attempt to take over the functions they now exercise in representing their architect members, but it is unlikely that any representation on negotiating councils would be conceded by either the employers' or the staffs' side for fear of creating a precedent to be followed by other professions with the consequence that such councils would become unwieldy in numbers.

The Council's Decisions. It thus became clear that, as far as architects not employed in private practice are concerned, their interests would be better served by organisations having the combined strength of many professions, provided that every opportunity was taken to ensure that the status of architects was adequately maintained, and by endeavouring to secure effective and regular consultation between the R.I.B.A. and the organisations concerned in all negotiations which involve other professions.

The Council therefore finally decided:

- (A) That the Royal Institute shall not sponsor a new organisation of a trade union nature;
- (B) That no one existing organisation shall be singled out for preferential support;
- (C) That members in salaried employment be advised that their interests will be best served by joining an existing organisation appropriate to their particular field of employment;
- (D) That the Royal Institute will proceed actively to explore alternative means of attaining the agreed objectives of improving and strengthening the conditions of employment of salaried architects in all classes of employment.

Having this last resolution in mind, it is the intention of the Council to review the functions of the department of the Royal Institute which serves salaried members in official positions and in private offices to ascertain:

- (1) in what direction further effort might be practicable and of benefit to salaried members generally;
- (2) how co-operation and liaison with the various negotiating bodies may be strengthened and improved.

The Council have entrusted this review to the Salaried and Official Architects' Committee. The results will be reported to members in due course.

Yours faithfully,

C. D. SPRAGG,
Secretary, R.I.B.A.

Review of Construction and Materials

This section gives technical and general information. The following bodies deal with specialised branches of research and will willingly answer inquiries.

The Director, The Building Research Station, Garston, near Watford, Herts.
Telephone: Garston 2246.

The Officer-in-charge, The Building Research Station Scottish Laboratory, Thorntonhall, near Glasgow.
Telephone: Bushy 1171.

The Director, The Forest Products Research Laboratory, Princes Risborough, Bucks.
Telephone: Princes Risborough 101

The Director, The British Standards Institution, 2 Park Street, London, W.1.
Telephone: Mayfair 9000.

The Director, The Building Centre, 26 Store Street, Tottenham Court Road, London, W.C.1.
Telephone: Museum 5400 (10 lines).

The Director, The Scottish Building Centre, 425-7 Sauchiehall Street, Glasgow, C.2.
Telephone: Douglas 0372.

The Swan Song of a Firm. Never before have we written in this Review about the winding up of a firm. But then, few firms have published a book to signalise their demise, as has now been done by P. E. Gane Ltd. of Bristol. Since 1824 the house of Gane have been makers of fine furniture and, unlike many of their kind, they have been really interested in design. From the Victorian days of neo-Jacobean and Louis XV pieces, they progressed very early to the Art Nouveau and 'cottage' designs of the Voysey school. Under the leadership of Mr. Crofton Gane they took an active part in the attempts of the D.I.A. to make the British furniture industry a leader rather than a follower, themselves employing J. P. Hully and Marcel Breuer as designers. In 1940 they lost first their showrooms and then their workshops in air raids, and though they reopened in temporary premises they could not recover their position as makers of quality furniture. Moreover, by the post-war years, the big furniture makers had learnt a lot about design and there was also no longer a class of society able or willing to pay a good deal more for a difference in quality which hardly showed on the surface. So, in a charming little book by Howard Wadman, 'A Swan Sings', P. E. Gane Ltd. have recounted their story and announced the creation of a charitable and educational trust with the money 'left over'. Thus another of the old 'family' firms of the kind which places first high quality in its products, together with good personal relations with craftsmen employees, has gone.

National Building Studies. The D.S.I.R. have published Research Paper No. 24, *A study of the interreflection of daylight using model rooms and artificial skies*, written by R. G. Hopkinson, Ph.D., M.I.E.E., and J. Longmore, of the Building Research Station. The study states that the 'classic' approach to natural lighting is based on two premises, (a) that the sky is uniformly bright, and (b) that only that light reaching the working point directly from the sky need be considered, the amount of light reaching it by reflection being negligible. But neither of these premises is valid, though they do not lead

to serious error in the circumstances for which the classic approach was devised. In modern building practice, when large side-windows and interior room surfaces of high reflection factor are often employed, these assumptions lead to very considerable error as in such conditions the reflected component of the natural lighting may be two, three or four times the direct component.

The prediction of the total daylight, both direct and reflected, is a complex problem in which attempts at solution have failed to achieve an acceptable compromise between accuracy and expediency. In the work done at the Station the compromise has been biased deliberately on the side of simplicity.

After giving the definitions of sky factor and daylight factor as defined by the *Commission Internationale de l'Eclairage* (C.I.E.), the Study says that it has been necessary to introduce the concept of a sky factor based, not on the sky of uniform luminance as required by the C.I.E. definition, but on the non-uniform overcast sky which is the basis of the Study, and this has been called the 'direct component of daylight factor,' and can be derived from the sky factor by a simple calculation, which is described. The indirect component of daylight factor is that part of the total daylight factor received, not directly from the sky, but after reflection from surfaces both inside and outside the room. The ratio of the total daylight factor at a point to the corresponding direct component has been called the 'daylight utilisation ratio.' This ratio is a measure of the efficiency of the room as an integration of light and has been found to be a convenient basis for a simple method of daylight factor calculation.

The investigations at the B.R.S. were carried out with the use of models, representing a hospital ward and classrooms, and an artificial sky. In the model classroom the walls were removable panels so that panels with different reflection factors could be studied, and the results of the various tests are expressed in graphs.

The linear relations between the logarithm of the daylight factor and the reflection factors of the surfaces in the model classroom suggested that by using a

slide rule principle daylight factors might be calculated, and arrangements have been made for such a calculator with one cursor to be manufactured on a small scale, at an estimated price of about £2; it is scaled for ceiling height, distance from window, ceiling, floor and wall reflection values, and daylight factor. Inquiries regarding the instrument should be addressed to the Director of Building Research, B.R.S., Garston, Watford, Herts.

The Research Paper can be bought from H.M.S.O., price 2s. net. The S.O. code number is 47-551-24.

Corroglaze. It is probably true to say that the longer we have known a material in its original and well-known form the less likely we are to think of possible innovations in its shape. For instance, at mention of the word 'glass' in connection with buildings 99 persons out of 100 will immediately think of a flat sheet, even if curved in profile, though some may dimly remember having seen a narrow ribbed variety. Broadly speaking, glass used in building has remained flat in section for hundreds of years and nobody thought of making it anything else. Recently perspex and similar translucent materials have been produced in corrugated form, and perhaps this has suggested to Messrs. Corroglaze Ltd. that glass might also be made corrugated, but whatever the reason they have now brought out Corroglaze.

Corroglaze is made of $\frac{1}{4}$ in. best quality plate glass, corrugated to match the Big Six variety of asbestos cement sheets, and it is reinforced with 1 in. square wire mesh. A special interior ribbing ensures the highest diffused lighting effect.

The characteristics claimed for this new-old material are that it will not burn, does not discolour under exposure, and is unaffected by fumes. Advantages are that glazing bars are not needed and that there will be no risk of leakages through fixing bolt holes as there are none, fixing being done by hooks and rubber buffers. It is recommended that Prestik sealing strips be laid over the upper purlin carrying the Corroglaze and also along the top of the glazing as a cushion for the lower edge of the overlapping asbestos cement sheet, where such sheeting is used for the main portion of the roofing. Corroglaze can also be used for vertical glazing.

Technical details: nominal length of sheets, 60 in.; nominal width, 41 $\frac{1}{2}$ in.; net cover width when laid, 40 in.; pitch of corrugations, about 5 $\frac{1}{2}$ in.; depth of corrugations, 2 $\frac{1}{8}$ in.; purlin spacing, 4 ft. 6 in.; nominal weight per sheet, about 60 lb.

Corroglaze is made by Messrs. Corroglaze Ltd., Palace of Engineering, Wembley, Middlesex.

The Essex Automatic Vehicle Washer. At the present time some 8,000 buses are operating in London and they need regular and frequent washing. When considered in relation to all the buses, coach fleets and commercial vehicles throughout the country this task of cleansing seems, in theory, to be one of gigantic proportions. In practice,

however, invent Wash Trans plate which all re both The the r weight of ve width which Within brush mains push As it vehicle softer the m rinsed The washe to Esse Wh level It is coope project of bu Essex has to be co design to the instal drain kept weight 1,200 The stone W.I. Work cent const a grea of a simp block new Hull, Gibbe The 192 f grid, block The f bays Lee-M up of and r The up and rib, a They eight, and

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however, the task is simple, owing to the invention of the Essex Automatic Vehicle Washer, and by using it the London Transport Executive are able to clean completely 59 double-deck buses an hour, in which time the machine has water-sprayed all round each vehicle and brush-cleaned both sides and the rear.

The machine, which is suspended from the roof, consists of a rectangular light-weight alloy frame made to suit any length of vehicle, and a model called the Vari-width incorporates a link expansion device which contracts to widths as low as 5½ ft. Within the frame are troughs housing fibre brushes fed with water from the normal mains supply. The machine is powered by push-button fractional h.p. electric motors. As it descends it totally encompasses the vehicle, the water-fed brushes revolve and soften and dislodge the mud and dirt. As the machine ascends the loosened dirt is rinsed away.

The latest models incorporate a roof washer, and this extra can readily be added to Essex washers already in use.

When not in use the machine rests at roof level and so does not occupy floor space.

It is a generally approved recommendation that all parties concerned should cooperate at the commencement of a project, and this is certainly true in the case of bus and commercial garages where the Essex machine is to be used, because as it has to be suspended its installation should be considered as an integral part of the design. In this way the machine can be sited to the best advantage, while the cost of installation, in terms of roof structure, drainage, water and electric supply can be kept to a minimum. The total suspended weight of the machine is approximately 1,200 lb.

The manufacturers are Messrs. Stratstone, Ltd., of 40 Berkeley Street, London, W.1.

Workshop Block, Kingston upon Hull. Recent examples of prestressed concrete construction point the moral that by taking a great deal of trouble at the beginning of a project subsequent operations are simplified and expedited, and the workshop block now being constructed as part of the new technical college at Kingston upon Hull, the architect of which is Mr. Frederick Gibberd, C.B.E. [F], is a case in point.

The workshop block is 312 ft. long by 192 ft. wide, planned on a 24 ft. by 24 ft. grid, the length being divided into four blocks by flat-roofed corridors 12 ft. wide. The frame consists of a series of north-light bays of reinforced precast concrete members, post-tensioned after erection by the Lee-McCall system. The shell roof is made up of precast units, and each north-light and roof unit together span the 24 ft. of the grid.

There are only two basic units making up the main frames, (i) a combined column and north-light strut, and (ii) the curved rib, and they are precast and pre-tensioned. They were precast on the site in batches of eight. The roof units are laid on the frames and clamped down, the space between



Lifting one of the precast pre-tensioned roof units at the Kingston upon Hull workshop block

adjacent units being filled with in situ concrete.

Much thought and work went to the construction of the prestressing bed, set up on the finished ground floor of one of the bays, but the many repetitive units doubtless made it economical. The bed is over 200 ft. long, and the jacking head is some 20 ft. wide. Plated vertical channels were placed at the ends of the floor and r.s.j. anchored spreaders were kept in position by temporary concrete, rocker bearings making contact with the vertical channels to avoid bending moments being induced in the floor. It was necessary to counter-balance the forces exerted by the prestressing wires and this was done by Macalloy tie-bars passing through 3 in. drain pipes laid about 5 ft. down in the ground. The tie-bars were therefore free to move and could be recovered. The wires were stressed in pairs by a travelling jack and at the same time the loads on the Macalloy bars were taken up with a Lee-McCall jack, to ensure that the channels remained vertical. During de-tensioning the loads on the tie-bars were gradually eased, allowing the entire head arrangement to pivot about the rocker bearings until all the load was released.

To enable the shell units to be lifted and placed, a shaped channel was temporarily bolted to the ends of each unit.

Screws for Aluminium Door Furniture. Messrs. Guest, Keen and Nettlefolds (Midlands) Ltd. have issued a statement on the importance of using the correct type of screws for fixing aluminium door furniture, if trouble from electrolytic corrosion is to be avoided. In their view H.G.15 aluminium alloy wood screws should be standard normally. Brass screws, or screws of any other copper alloy, should never be used, whether plated or not. Stainless steel screws are satisfactory and so are ordinary steel screws, provided that they are coated with an adequate thickness of zinc or cadmium.

Rocksil. In the December issue of the JOURNAL, on page 77, a note on this material appeared. We are now informed that it may be better known under the marketing name of Messrs. Meta Mica Ltd., of Chapel Field Works, Dukinfield, Cheshire, who are a subsidiary of Messrs. William Kenyon and Sons Ltd. In addition to the three thicknesses mentioned in our note, Rocksil is also made in 1 in. and 2 in. nominal thicknesses.

B.S. Handbook No. 3: 1953. Addendum No. 1. This handbook contains summaries of 268 B.S.s. issued before 1 August 1953. The Addendum sets out changes up to 1 August 1954 and contains summaries of 7 new B.S.s. with 12 summaries of Standards that have been revised since the issue of the Handbook. Amendments to a further nine summaries, covering minor changes, are included in the form of tear-out gummed slips.

Addendum No. 1 can be obtained from the B.S.I. at a cost of 6s. to those who already have a copy of the Handbook. Copies of the Handbook, including the Addendum, can be had for 32s. 6d. Both prices are subject to subscribing membership discount.

British Standards Recently Published

B.S. 2539: 1954. Preferred Dimensions of Reinforced Concrete Structural Members. In large building schemes where much repetition occurs the key to lowering the cost of formwork lies in the standardisation of formwork sizes, and the essential preliminary to this is the standardisation of the dimensions of shuttered faces of structural members, and the Standard gives a standard range of preferred sizes for the cross-sectional dimensions of such members, for adoption wherever practicable. Light precast members are excluded. By the adoption of the range it may be possible to reduce the use of specially-made items of formwork to a minimum. Price 2s., post free.

Notes and Notices

NOTICES

Fourth General Meeting, Tuesday 1 February 1955 at 6 p.m. The Fourth General Meeting of the Session 1954-55 will be held on Tuesday 1 February 1955 at 6 p.m. for the following purposes:—

To read the Minutes of the Third General Meeting held on 4 January 1955.

The President, Mr. C. H. Aslin, C.B.E., to deliver an address to architectural students and present the Medals and Prizes 1955.

Mr. Raymond C. Erith [F] to read a criticism of the designs and drawings submitted for the Prizes and Studentships 1955.

(Light refreshments will be provided before the meeting.)

Fifth General Meeting, Tuesday 1 March 1955 at 6 p.m. The Fifth General Meeting of the Session 1954-55 will be held on Tuesday 1 March 1955 at 6 p.m. for the following purposes:—

To read the Minutes of the Fourth General Meeting held on 1 February 1955; formally to admit new members attending for the first time since their election.

Dr. J. Bronowski to read a paper on 'Architecture as a Science and Architecture as an Art'.

(Light refreshments will be provided before the meeting.)

Session 1954-55. Minutes III. At the Third General Meeting of the Session, 1954-55, held on Tuesday 4 January 1955, at 6 p.m., Mr. C. H. Aslin, C.B.E., President, in the Chair.

The meeting was attended by about 420 members and guests.

The Minutes of the Second General Meeting held on Tuesday 7 December 1954 having been published in the JOURNAL, were taken as read, confirmed and signed as correct.

The following members attending for the first time since their election were formally admitted by the President: *As Fellows*: A. V. Banks, W. J. Donger, L. E. Gregory, V. C. Hunt, C. F. J. Thurlay, J. L. Ware and George Yarwood. *As Associates*: R. E. Cuddon, R. H. Davies, R. A. Gascoigne, P. A. Hickson, Mayer Hillman, J. B. Lehrman, P. H. McKay, R. V. J. G. Major, G. A. Marsh, L. K. E. Ozolins, Gerard Scott-Williams, I. W. Swanson, V. J. Thurgood, H. G. Wiles, D. A. Woods and Mrs. M. J. Woods. *As Licentiate*: Arthur Martin.

The Secretary read the Deed of Award of Prizes and Studentships made by the Council under the Common Seal.

Mr. E. Maxwell Fry, C.B.E. [F] having read a paper on 'Chandigarh: The Capital of the Punjab,' a discussion ensued, and on the motion of Mr. Peter F. Sheppard, B.Arch., A.M.T.P.I. [A], seconded by The Hon. Lionel Brett, M.A. [F], a vote of thanks was passed to Mr. Fry by acclamation and was briefly responded to.

The proceedings closed at 8.20 p.m.

R.I.B.A. Conditions of Engagement and Scale of Professional Charges. The Council have approved the following amendments to the drafting of the preamble to Section B and Section B.1 of the Scale of Professional Charges. These amendments take effect from the date of the Council Meeting, 7 December 1954.

The preamble to Section B will in future read as follows: Apart from the two copies of

the drawings and documents provided for in Clause B.1 and the drawings specified in Clause A.6, the fees as set out in this Scale of Charges are in all cases exclusive of the cost of all prints and other reproductions of drawings and documents, travelling and hotel expenses and other reasonable disbursements.

Section B.1 will in future read as follows: **NEW WORKS:** For taking the Client's instructions, preparing sketch designs, making approximate estimate of cost by cubic measurement or otherwise, submitting applications for building or other licences and town-planning, bye-law or other approvals, preparing working drawings, specification or such particulars as may be necessary for the preparation of bills of quantities by an independent Quantity Surveyor, or for the purpose of obtaining tenders advising on tenders, and preparation of contract, nominating and instructing Consultants (if any), preparing, and supplying for the use of the Contractor, two copies of all drawings, specification or other particulars and of such further details as are necessary for the proper carrying out of the works, giving general supervision as defined in the Conditions of Engagement, issuing certificates for payment, and certifying accounts, exclusive of the services enumerated in Clauses B.5 and B.14, the charge is to be a percentage on the total cost of all executed works as follows:—

(Sub-clauses (i) to (iv) are not altered.)

British Architects' Conference, Harrogate, 8-11 June 1955. The West Yorkshire Society of Architects are well advanced in the preparation of the programme of the Conference to be held at Harrogate and full details will be published in due course. A list of hotels prepared by the Conference Executive Committee is given below and members intending to be present at the Conference are advised to reserve accommodation as soon as possible. The Conference Headquarters and Conference Dinner will be at the Majestic Hotel.

R.I.B.A. Reception: Friday 20 May 1955. The R.I.B.A. Reception will be held on Friday 20 May 1955 from 8.15 p.m. to midnight. Tickets price 15s. each may be obtained by members on application to the Secretary. Applications, which must be accompanied by the necessary remittance, should be made before 31 March, as although no restriction is being made on the number of tickets each member may take, the list may have to be closed when there is an unusually large demand.

Annual Subscriptions and Contributions. Members' subscriptions and Students' contributions for 1954 became due on 1 January.

	£	s.	d.
Fellows	7	7	0
Associates	4	4	0
Licentiates	4	4	0
Students	1	11	0

For members resident in the trans-oceanic Dominions who are members of Allied Societies in those Dominions, and for members resident overseas in areas where no Allied Society is available, the amounts are as follows:

	£	s.	d.
Fellows	4	4	0
Associates	3	3	0
Licentiates	3	3	0

Building Surveying Examination. The R.I.B.A. Examination qualifying for candidature as Building Surveyor under Local Authorities will be held at the R.I.B.A. on 20, 21 and 22 April 1955. Applications for admission to the examination must be made not later than 25 February on the prescribed form to be obtained from the Secretary R.I.B.A.

The Class of Licentiates. Since 1 January 1954 the class of Licentiates has been open only to those whose names are on the register maintained by the Architects' Registration Council of the United Kingdom. As from 1 August 1940 admissions to this register on a practical qualification, apart from a few exceptions under Regulation 26B, were discontinued and only those who qualify by the examinations recognised for the purpose may be admitted to the

British Architects' Conference, Harrogate, 8-11 June 1955.

LIST OF HOTELS

Hotel	Address	Total No. of Guests	Bed and Breakfast	Garage
*Majestic	Ripon Road	300	27/6 to 32/6	Yes
*Cairn Hydro	Ripon Road	240	21/-	Yes
*The Old Swan	Swan Road	250	25/-	Yes
*Prince of Wales	West Park	210	21/6 to 30/6	Yes
*Adelphi	Cold Bath Road	100	17/6	
Beechwood Court	Cold Bath Road	100	15/6	
Grange	West Stray	100	14/6 to 21/-	Lock-ups Adjoining
*Prospect	Prospect Place	150	22/6 to 27/6	Yes
*St. George	Ripon Road	120	25/- to 30/-	Yes
Cecil	Valley Drive	80	25/- (incl. dinner)	No
Claremont	Victoria Avenue	80	24/- (full board)	No
Dilton	Ripon Road	80	14/-	No
Green Park	Valley Drive	80	17/6 to 19/6	Nearby
Kensington	Valley Drive	50	15/- to 16/6	No
Kirkysde	St. Mary's Walk	60-70	14/6 to 16/6	No
Langham	Valley Drive	80	17/6	Nearby
*North Eastern	Station Square	50	18/6	No
Russell	Valley Drive	80	17/6 to 18/6	Nearby
Valley Gardens	Valley Drive	70	16/6 to 18/6	No
Berkeley	35 Victoria Avenue	25	15/-	No
Boston	Swan Road	30	14/6	No
Metropole	Valley Drive	32	17/6	No
Mount Edgcumbe	103-105 Valley Drive	30	16/6	No
Octagon	Valley Drive	40	16/6	Nearby
Regal	Oxford Street	30	15/-	No
Ridings	Springfield Avenue	25	21/- (full board)	Yes
Riversdale	17-19 Valley Drive	28	16/6 to 17/6	Nearby
Studley	Swan Road	28	25/-	Nearby

In addition to the above a complete list of hotels, boarding houses, etc., may be obtained from W. W. Bassett, Information Bureau, Harrogate.

* Licensed.

register. These examinations are identical with those which qualify candidates for the Associateship, R.I.B.A.

There has therefore been a period of 21 years in which persons holding a practice qualification have had the opportunity to apply for election as Licentiates.

By resolution of the Council in accordance with Bye-law 7, further admissions to the class of the Licentiates will be discontinued as from 31 December 1955.

Kalendar 1954-55: Corrections. In the new edition of the Kalendar on page 454 the address of Mr. Maurice William Smith [4] is incorrect, and should read 29 Clifford Road, Princes Risborough, Bucks.—not 22. On page 649 the name of the following Student has been omitted in error: Whitehead: John, 112 Mercers Road, N.19 (Elected 2 February 1954).

Cessation of Membership. Under the provisions of Bye-law 21, the following have ceased to be members of the Royal Institute: *As Associates*: Hans Eduard Bock, Mailech Kotlowitz, William Charles Powell, Arthur Gwynne Price, Alfred Alexander Tait, Louis Rigola Volonterio. *As Licentiate*: Bluvitt Benjamin Bowley.

CURRENT R.I.B.A. PUBLICATIONS

The following is a list of main R.I.B.A. publications with their prices.

Agreement, Forms of

Form of Agreement for General Use between a Private Building Owner and an Architect or a Firm of Architects.

Form of Agreement for General Use between a Building Owner (being a Statutory Authority) and an Architect or a Firm of Architects.

Form of Agreement between a Local Authority and a Firm of Architects for Housing Work.

Form of Agreement between a Local Authority and a Firm of Architects for Multi-Storey Flats.

Form of Agreement between the Promoters and a Firm of Architects appointed as the Result of a Competition.

Price 6d. per form (inclusive of purchase tax). Postage 3d.

Architect and His Work, The

Price 6d. Postage 3d.

Before You Build, Free.

Certificates, Architects', Form Prepared by the Practice Committee

Copyright. Book of 100 Certificates.

Price 17s. (inclusive of purchase tax). Postage 1s. 3d.

Conditions of Engagement and Scale of Professional Charges

Price 6d. Postage 3d.

Contract, Form of Agreement and Schedule of Conditions

For use with quantities: 1939 revised 1952.

Copyright.

For use without quantities: 1939 revised 1952.

Copyright.

Price 2s. 2d. per form (inclusive of purchase tax). Postage 3d.

Adapted for the use of Local Authorities, for use with quantities: 1939 revised 1952. Copyright.

Adapted for the use of Local Authorities, for use without quantities: 1939 revised 1952.

Copyright.

Price 2s. 4d. per form (inclusive of purchase tax). Postage 3d.

Fixed Fee Form of Prime Cost Contract for use in the repair of war-damaged property, 1946 revised 1954. Copyright.

Price 2s. 2d. (inclusive of purchase tax). Postage 3d.

Cost Plus Percentage Form of Prime Cost Contract for use in the repair of war-damaged property: 1946 revised 1954. Copyright.

Price 2s. 2d. (inclusive of purchase tax). Postage 3d.

Examination, Intermediate, Questions Set At Price 1s. per examination. Postage 3d.

Examination, Professional Practice, Questions Set At Price 6d. Postage 3d.

Examinations, Final and Special Final, Questions Set At Price 1s. per examination. Postage 3d.

Forms of Articles of Pupilage

Copyright. Price 1s. 8d. (inclusive of purchase tax). Postage 3d.

Membership of the R.I.B.A.

Particulars of the Qualifications for Associate-ship.

Price 2s. 6d. Postage 3d.

Party Wall Notice Forms, for Use Under the London Building Act

Form A—Party Structures.

Form B—Party Fence Walls.

Form C—Intention to Build within Ten Feet and at a lower level than the bottom of the foundations of adjoining Owner's Building.

Form D—Intention to Build within Twenty Feet of the adjoining Owner's Independent Building and to a depth as defined in Section 50 (1) (d).

Form E—Party Walls and Party Fence Walls on line of Junction of adjoining lands.

Form F—Walls or Fence Walls on Building Owner's land with footings and foundations projecting into adjoining Owner's land.

Form G—Selection of Third Surveyor.

Price 7d. per form (inclusive of purchase tax). Postage 3d.

ALLIED SOCIETIES

Change of Officers and Addresses

East African Institute of Architects. President, A. D. Connell [4], P.O. Box 6160, Nairobi.

Royal Australian Institute of Architects, *Queensland Chapter*. Secretary, Mrs. E. J. Hilton, A.M.P. Building, Edward Street, Brisbane, Australia.

Bucks Society of Architects. Annual Dinner and Dance. The Bucks Society of Architects held their annual dinner and dance at the Bellhouse Hotel, Beaconsfield, on 4 December when about eighty members and their guests were present. After dinner, Mr. H. J. Stirling [F] proposed the toast of the R.I.B.A. and Mr. E. D. Jefferiss Mathews, O.B.E., A.R.I.C.S., Vice-President R.I.B.A. replied. He also proposed the toast of the Bucks Society of Architects, to which Mr. A. B. Waters, M.B.E., G.M. [F] replied. The health of the guests, proposed by Mr. H. Desmond Hall [4], was replied to by Mr. W. S. Jones, President of the Southern Counties Federation of Building Trades Employers.

A raffle and an auction for the Architects' Benevolent Society brought in £15 1s. 2d. The very lively dancing continued until midnight. Fortunately the night was clear so that guests from neighbouring counties had a good drive home.

Bristol and Somerset Society of Architects. The annual dinner of the Bristol and Somerset Society of Architects was held at the Red Lodge, Bristol, on Tuesday 30 November; Mr. J. Nelson Meredith [F], President of the Society was in the Chair. Mr. Eustace H. Button, R.W.A., J.P. [F], proposed the toast of The City and County of Bristol, to which the Lord Mayor, Alderman G. G. Adams, J.P., replied. The President, Mr. J. Nelson Meredith, proposed the toast of the R.I.B.A.; The President R.I.B.A., Mr. C. H. Aslin, C.B.E., responded. The toast of the Guests was proposed by Mr. J. Ralph Edwards, M.B.E., F.S.A., R.W.A. [F], and replied to by Mr. Donald Hughes, R.W.A., President of the Bristol Savages. The guests included Mrs. Aslin, Mr. C. D. Spragg, C.B.E., Secretary R.I.B.A., Mr. G. W. Grosvenor, President N.F.B.T.E., and Mrs. Grosvenor.

GENERAL NOTES

The Marley Tile Travelling Scholarship. The Architectural Association announce that the Marley Tile Co. Ltd. offer a travelling scholarship of £750 to enable a Fellow or Associate of the R.I.B.A. to undertake a tour of three months' duration to Mexico, Venezuela and Brazil.

The winner will be required to study the architecture and the building activities of Mexico, Venezuela and Brazil, and (1) to take photographs for the production of coloured slides to illustrate his reports (if necessary a camera will be lent for this purpose by the Marley Tile Co. Ltd.), and (2) to prepare a report upon each of the three countries, the use and copyright of which will remain at the disposal of the promoters and the Architectural Association.

Applicants must be under 40 years of age, and must provide evidence of their office experience and of their special interest in the architecture and building activities of Mexico and South America referred to above.

Typewritten applications (four copies) must be submitted by the 7 February 1955 to the Secretary, the Architectural Association, 36 Bedford Square, London, W.C.1, and must contain the following particulars:—Age; architectural education; academic qualifications; present occupation or employment; evidence of the candidate's suitability for appointment to the scholarship (a knowledge of one or more European languages would be of value). The names of two persons to whom reference may be made regarding the candidate's fitness for appointment to the Scholarship.

The applications will be considered by a Selection Committee consisting of the two following representatives appointed by the Council of the Architectural Association:—Mr. Howard V. Lobb, C.B.E. [F], Mr. H. T. Cadbury-Brown, A.A.Dipl.(Hons.) [F], and one representative of the Marley Tile Co., Ltd.

Estate Management Conference—Reconditioning of Rural Houses. The Agricultural Land Service in conjunction with the Country Landowners' Association and the Ministry of Housing and Local Government will hold a Conference on the Reconditioning of Rural Houses on Monday, 31 January, at the Octagon, Milsom Street, Bath, commencing at 11 a.m. The Rt. Hon. The Earl St. Aldwyn, T.D., D.L., Joint Parliamentary Secretary of the Ministry of Agriculture and Fisheries, will take the Chair.

At the morning session papers will be read by representatives of the Country Landowners' Association, a Rural District Council and the Ministry of Housing and Local Government.

A Panel comprising the speakers, and representatives of the Rural District Councils Association, National Farmers' Union, National Union of Agricultural Workers and the Sanitary Inspectors' Association has been formed to answer questions.

At the afternoon session a paper will be read by Mr. Hugh D. Roberts, A.A.Dipl. [F], and films will be shown.

Details may be obtained from Mr. D. A. Hole, N.D.A., F.R.I.C.S., Provincial Land Commissioner, Ministry of Agriculture and Fisheries, Block 3, Government Buildings, Burghill Road, Westbury-on-Trym, Bristol.

The Glasgow School of Architecture: Jubilee Dinner. Fifty years of one of the oldest schools of architecture in Great Britain were celebrated at a dinner in Glasgow on 26 November 1954. Mr. A. Graham Henderson, R.S.A., Past President R.I.B.A., was in the chair and among the guests were Mr. F. Charles Saxon, Vice President R.I.B.A., Sir Hector Hetherington, Principal of the University of Glasgow, Mr. L. Grahame MacDougall, R.S.A. [F], President of the Royal Incorporation of Architects in Scotland, Sir. W. O. Hutchison, President of the Royal Scottish Academy, Mr. W. A. P. Jack [F], President of the Glasgow Institute of Architects, Professor R. H. Matthew, C.B.E. [A], Professor of Architecture, University of Edinburgh, Mr. C. D. Spragg, C.B.E., Secretary R.I.B.A. and many other distinguished persons connected with architecture and education.

Mr. Graham Henderson announced the creation of a jubilee prize for the school to mark the occasion in permanent form. The toast of the City of Glasgow was proposed by Mr. Alexander Turnbull, C.B.E., J.P., and replied to by Bailie David M. Wardley. Mr. F. Charles Saxon, proposing the toast of the Glasgow School of Architecture, said that it was not sufficient merely to impress people with learning nor to stand on one's dignity. Architects must know their jobs. As time went on they were expected to know more and more. They must, for example, be 'top of the world' in knowledge of building craft. Professor William J. Smith, M.C., F.S.A. [F], traced the origin of the school back to bodies such as the Royal Technical College and the first Academy in Fine Arts, the forerunner of the Glasgow School of Art, started in 1753. Therefore, although the 'marriage' of these earlier institutions took place only in 1904, the present School of Architecture could be said to be their 'offspring'. It had been interesting to watch the growth of the school from a student roll of 40 or 50 to the 300 at present. The first head of the school had been Eugene Bourdon, a Frenchman and a brilliant teacher. Under him, the school had been strongly influenced by the Beaux Arts tradition. After his death, in the Battle of the Somme in 1916, James B. Fulton, a notable draughtsman and winner of prizes, had succeeded him. He had been followed by T. Howard Hughes, a remarkable character and a man of taste and erudition. Hughes had retired from the school in 1942. The influence of the Glasgow School of Art under Professor McGibbon and of the Royal Technical College under Professor Gourlay had been profound. In 1921, one year after the Liverpool School and the A.A., the Glasgow School of Architecture had received final recognition by the R.I.B.A.

The toast of 'The Fine Arts' was proposed by Sir Hector Hetherington, K.B.E., M.A., LL.D., and replied to by Sir William Hutchison, P.R.S.A. The toast of 'The Guests' was proposed by Dr. J. Norman Cruickshank, M.C., F.R.C.P., and replied to by the Lord Dean of Guild, Mr. William H. Marr.

R.I.B.A. Cricket Club. The Annual General Meeting and Dinner of the Club was held on 3 December 1954 at the Architectural Association. The following were elected officers for 1955: President—P. W. Adams [F], Vice-Presidents—T. E. Scott, C.B.E. [F], S. B. Caulfield [F], C. D. Spragg, C.B.E. Club Captain—C. A. R. Norton [A]. Vice-Captain—B. S. Smyth [A]. Hon. Auditor—W. W. Atkinson, O.B.E. [A]. Hon. Secretary—B. S. Smyth [A].

Some thirty members and their guests attended the annual dinner which followed the meeting and the following toasts were honoured: 'The Club': proposed by B. J. Garrett, F.I.O.B. (Captain of the L.M.B.A. Cricket Club). Reply by C. A. R. Norton [A]. 'The Guests': proposed by J. G. Batty [A]. Reply by Martin S. Briggs [F].

A message of sympathy in his illness was sent to the President of the Club, Mr. P. W. Adams, from those present at the dinner.

Membership Lists

ELECTION: 4 JANUARY 1955

The following candidates for membership were elected on 4 January 1955.

AS HON. FELLOW (1)

Eccles: The Right Hon. Sir David McAdam, K.C.V.O., M.P.

AS HON. ASSOCIATES (3)

Colvin: Howard Montagu, Oxford.
Morris: Henry, C.B.E., M.A.(Oxon.), M.A. (Cantab.), Cambridge.
Pilot: Robert W., M.B.E., D.C.L. (Bishops University), President, Royal Canadian Academy of Arts, Corresponding Member, National Academy of Design, New York, U.S.A., Montreal, P.Q., Canada.

AS FELLOWS (6)

Clarke: Lewis Arthur [A 1935], Coventry.
Cole: Douglas James, Dip.Arch. (The Polytechnic) [A 1944].
Gear: Arthur Middleton [A 1939].
Gould: Geoffrey Hamilton, A.A.Dipl. [A 1941].
Hall: Victor [A 1942], Corby.
Hannam: Francis Lambson [A 1936], Bristol.

AS ASSOCIATES (64)

Barclay: (Miss) Anne Stuart, D.A.(Glas.), Glasgow.
Barden: John Edward, Dipl.Arch. (Northern Polytechnic).
Blower: Michael, A.A.Dipl., Liphook.
Bridge: Ronald, Dipl.Arch. (Leeds), Bradford.
Brown: Robert Scott, B.Arch. (Rand).
Buckingham: Albert Barrie, Dipl.Arch. (Northern Polytechnic).
Burnett: Robert Stirling, D.A.(Glas.), Glasgow.
Cameron: Roger John, Haywards Heath.
Castel: James, D.A.(Glas.), Bearsden.
Cattanach: Donald Hood, D.A.(Glas.), Kingussie.
Clow: Alexander Ralston, D.A.(Glas.), Glasgow.
Cole: David Charles, Halstead.
Dance: Dennis Arthur.
Dean: Peter Nicholas, Sidmouth.
Debenham: (Miss) Anne, B.A.(Arch.) (Lond.), Guildford.
Dobson: Harry Ernest Miller, Dip.Arch. (Dunelm), Seaham.
Drew: Eric George, Dipl.Arch. (U.C.L.), Merstham.
Duff: (Miss) Anne, D.A.(Glas.), Glasgow.

Duncan: Robert Davidson, D.A.(Glas.), Glasgow.

Duncan: Stuart, Dip.Arch. (Abdn), Banff.

Durham: (Miss) Jane, Dipl.Arch. (U.C.L.), Hindhead.

Evans: John Robert, Dip.Arch. (Cardiff), Caernarvon.

Firth: (Miss) Clara Charleson, D.A.(Glas.), Glasgow.

Hartley: Edward Henrik.

Hill: James Hamilton, D.A.(Glas.), Kilmacolm.

Hunter: James McEwan, D.A.(Glas.), Ayr.

Johri: Narendra Swarup, Lucknow, India.

Jones: Thomas Glyn, Dipl.Arch. (Cardiff), Penrhyneddraeth.

Lambert: Christopher Nigel.

Lloyd: Francis Henry, Luton.

Lowe: Jeremy Burman, Dipl.Arch. (Northern Polytechnic), Maidstone.

Macdonald: Ian Watson Aitken, D.A.(Glas.), Glasgow.

McGowan: Robert Nivison, D.A.(Glas.), Glasgow.

MacIntyre: Jack Baker, D.A.(Glas.), Bothwell.

O'Hare: John Augustine, B.Arch. (N.U.I., Dublin), Killiney.

Oldham: Kenneth, M.C.D., B.Arch. (L'pool), Huddersfield.

Patki: Yeshwant Janardan.

Pattullo: Leonard Ronald Wybrants, D.A. (Dundee), Carnoustie.

Paull: Clifford Haigh, Dip.Arch. (Dunelm), Sunderland.

Poole: Stanley, D.F.M., D.A.(Edin.), Edinburgh.

Rawling: George Ian, B.Arch. (Dunelm), Wallsend on Tyne.

Roberts: Francis Bernard, Dipl.Arch. (Northern Polytechnic), Holywell.

Robertson: John Dixon, D.A.(Edin.), Kirkcaldy.

Rosner: Robert Hans, B.Arch. (Dunelm), Hull.

Rylatt: Jack, York.

Ryley: Michael, Dipl.Arch. (Leeds), Burley-in-Wharfedale.

Scher: Harold Peter, B.A.(Arch.) (Lond.).

Scott: Walter Smith, Dip.Arch. (Abdn.), Aberdeen.

Scrase: Philip Sidney, Birmingham.

Selvaratnam: Visvanathan.

Shepherd: Scott Anthony, Beckenham.

Stewart: Alexander Reid, D.A.(Glas.), Blantyre.

Taylor: Michael John, Dipl.Arch. (Leeds), Scarborough.

Teasdale: Brian Walton, B.Arch. (Dunelm), Newcastle upon Tyne.

Telfer: Walter, Dip.Arch. (Dunelm), Newcastle upon Tyne.

Tyler: Keith Reginald, Dipl.Arch. (U.C.L.), Coulsdon.

Wallace: (Miss) Jean Stuart Campbell, D.A. (Glas.), Glasgow.

Wallace: Stuart Moore, D.A.(Glas.), Glasgow.

Warner: David Henry, Dipl.Arch. (Northern Polytechnic).

Welsh: (Miss) Jean Gordon, D.A.(Glas.), Glasgow.

West: Gerald Thomas, B.A.(Arch.) (Lond.), Croydon.

White: David Martin Brunel, Dip.Arch. (Dunelm).

Wood: Henry Howard Gardner, D.A.(Glas.), Glasgow.

Wray: (Miss) Joyce Bryce, B.A.(Manchester), Dip.Arch. (The Polytechnic).

ELECTION: 1 MARCH 1955

An election of candidates for membership will take place on 1 March 1955. The names and addresses of the candidates, with the names of their proposers, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary.

R.I.B.A., not later than Saturday 5 February 1955.
The names following the applicant's address are those of his proposers.

AS FELLOWS (7)

Boreham: Cyril Ernest Walter [A 1934], Staff Architect, Lloyds Bank Ltd., 6 Eastcheap, E.C.3; 99 Foxgrove Road, Beckenham, Kent. Brigadier Gerald Shenstone, R. J. Duke, E. V. Beer.

Johnson: Frederick [A 1933], 64 Bethel Street, Norwich; The Hill, Stoke Holy Cross, Norwich. W. H. Mitchell, C. J. Tomkins, E. W. B. Scott.

Low: Alick [A 1937], Messrs. Norman and Dawbarn, 5 Gower Street, W.C.1; 16 Hyacinth Road, Roehampton, S.W.15. G. R. Dawbarn, Arthur Korn, Frank Rutter.

Mardall: Cyril Leonard Sjostrom [A 1934] 2 Hyde Park Place, W.2; 7 Fitzroy Park, Highgate, N.6. F. R. S. Yorke, E. E. Rosenberg, Basil Spence.

Purcell: Donovan Cole, T.D., M.A.(Cantab.) [A 1947], 64 Bethel Street, Norwich; 15 The Crescent, Norwich. S. J. Wearing, C. J. Tomkins, E. W. B. Scott.

and the following Licentiates who are qualified under Section IV, Clause 4(c)(ii) of the Supplementary Charter of 1925:

Campbell: Donald Chadwick, 6 Pall Mall, Hanley, Stoke-on-Trent; 10 Sneyd Avenue, Newcastle, Staffs. E. T. Watkin, J. R. Piggott, Clifton Edwards.

Jacob: John Henry, 31 New Canal, Salisbury, Wilts.; 68 The Close, Salisbury. Michael Waterhouse, Cedric Ripley, P. W. Adams.

AS ASSOCIATES (260)

The name of a school, or schools, after a candidate's name indicates the passing of a recognised course.

Abadie: Raymond Noel (Final), 91 Old Brompton Road, S.W.7. Paul Nightingale, Arthur Korn, Edwin Rice.

Adams: Anthony, M. M. (Special Final), 47 Gotley Road, Brislington, Bristol, 4. J. N. Meredith, T. J. Lynch, R. Hellberg.

Advice: Alan Ross Peter (Final), 18 Walpole Street, Chelsea, S.W.3. Applying for nomination by the Council under Bye-law 3(d).

Appleby: David John (Final), 'Littlehaven', Hall Green Lane, Hutton, Brentwood, Essex. J. M. Scott, M. H. Thomas, Frederick Gibberd.

Armstrong: Kenneth Charles (Northern Poly. (London): Dept. of Arch.), 43 Shelburne Road, High Wycombe, Bucks. T. E. Scott, C. G. Bath, S. F. Burley.

Askew: George Arthur (Final), 12a Dorchester Court, Colney Hatch Lane, N.10. Edwin Rice, R. E. Enthoven, Arthur Korn.

Austin: William Midgley (Final), 30 Marlborough Avenue, Hessle, East Yorks. J. Konrad, F. J. Horth, Allanson Hick.

Bagguley: Reginald Walker (Special Final), 58 Columba Road, Blackhall, Edinburgh, 4. G. A. Crockett, L. S. Stanley, J. S. Johnston.

Baker: Claude de Lacy (Special Final), 41 Langham Court, Wyke Road, Raynes Park, S.W.20. S. C. Clark, Harold Overnell, D. G. Millett.

Barber: Philip (Final) 60 Newbarn Road, Fitton Hill, Oldham, Lancs. Prof. R. A. Cordingley, G. B. Howcroft, Dr. W. A. Singleton.

Barnard: Michael Harrington, Dip.Arch. (The Polytechnic) (The Poly. Regent Street, London: Sch. of Arch.), c/o County Architect's Department, County Hall, Chelmsford, Essex. Harold Conolly, Denis Senior, J. S. Walkden.

Barr: George Kidd, D.A.(Glas.) (Glasgow Sch. of Arch.), c/o Mrs. Watt, 118 Massereene Road, Kirkcaldy, Fife. Alexander Wright, William McCrea, R. F. Hutchison.

Bass: Kenneth John, Dip.Arch.(Leics.) (Leicester Coll. of Art and Tech. Sch. of Arch.), 14 Sutton Road, Knighton Lane East, Leicester. S. Penn Smith, G. A. Cope, F. H. Jones.

Bates: Michael Peter (Final), 16a Sackville Road, Bexhill-on-Sea, Sussex. K. E. Black, H. M. Pett, S. H. Tiltman.

Bavle: Dinkar Malharrao (Final), 13 Brunswick Square, King's Cross, W.C.1. Applying for nomination by the Council under Bye-law 3(d).

Bicknell: John Rupert (Arch. Assoc. (London): Sch. of Arch.), 44 Earls Court Square, S.W.5. Arthur Korn, R. F. Jordan, Peter Bicknell.

Biggin: Charles Duncan, Dipl.Arch.(Leeds) (Leeds Sch. of Arch.), 4 Avondale Crescent, Shipley, Yorks. F. Chippindale, D. A. Fowler, Eric Morley.

Binyon: Raymond, B.Arch.(L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), 264 Spital Road, Bromborough, Cheshire. Prof. R. Gardner-Medwin, Prof. L. B. Budden, M. G. Gilling.

Blair: Kenneth Vernon (Final), 14 Crawshaw Grove, Sheffield, 8. Prof. Stephen Welsh, W. G. Davies, W. L. Clunie.

Blomfield: Giles Henry, B.A.(Arch.) (Lond.) (Bartlett Sch. of Arch.: Univ. of London), 51 Frogmire, Hampstead, N.W.3. Prof. H. O. Corfato, R. C. White-Cooper, Thomas Ritchie.

Bravery: Ian Bowen, Dip.Arch. (Cardiff) (Welsh Sch. of Arch.: The Tech. Coll., Cardiff), 42 Redbrink Crescent, Barry, Glamorgan. Lewis John, Dr. T. A. Lloyd, Sir Percy Thomas.

Bradley: Maurice Hewitt (Special Final), 1 Cherry Tree Ave., Garden Village, Hull, Yorks. A. N. Thorpe, Colin Rowntree, E. Firth.

Bromiley: Robert Graham, B.A.(Arch.) (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), Devonshire House, 5 Stoney Hey Road, Wallasey, Cheshire. Prof. R. Gardner-Medwin, Sir Alfred Shennan, J. A. Haddy.

Brookbank: David Arthur Paul (Final), 3 Beverley Court, 17 Second Avenue, Hove, Sussex. K. E. Black, O. Singer, G. A. Crockett.

Brown: Albert James Samuel (Special Final), 3 Wrexham Road, Harold Hill, Nr. Romford, Essex. T. E. Scott, C. G. Bath, S. F. Burley.

Brown: Colin (Final), 'Hillcrest', 13 Moran Road, Macclesfield, Cheshire. Prof. R. A. Cordingley, Arthur Clayton, Dr. W. A. Singleton.

Browne: Frederick Charles, B.Arch.(N.U.I. Dublin) (Univ. Coll., Dublin, Ireland: Sch. of Arch.), 22 Lr. Baggott Street, Dublin. J. J. Robinson, Prof. J. V. Downes, P. J. Munden.

Burgess: Colin Scott (Special Final), 6 Rutherford Road, Streatham, S.W.16. J. E. Dixon-Spain, Charles Nicholas, C. S. Burgess.

Burnett: Alan John (Final), 4 Benchleys Road, Hemel Hempstead, Herts. H. K. Ablett, T. H. B. Burrough, G. D. G. Hake.

Burnett: John Lindley, Dip.Arch.(Nottm.) (Nottingham Sch. of Arch.), 'Sivoh House', Scrothern, Lincoln. R. E. M. Coombes, F. H. Crossley, J. W. M. Dudding.

Bussey: Donald Franklin (Birmingham Sch. of Arch.), 1 Hanch Place, Walsall, Staffs. A. Douglas Jones, T. M. Ashford, Herbert Jackson.

Butchers: Philip George (Final), Yanleigh, Long Ashton, Bristol. J. N. Meredith, T. H. B. Burrough, G. D. G. Hake.

Butterell: Robin Darker, B.Arch.(L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), The Old Rectory, Bredicot, Spetchley, Nr. Worcester. Prof. L. B. Budden, L. C. Lomas, R. R. Young.

Cairns: William Allan, D.A.(Dundee) (Dundee Coll. of Art: Sch. of Arch.), 95 Craigie Avenue, Dundee, John Needham, W. S. Gauldie, T. H. Thomas.

Carrie: Stanley James, D.A.(Dundee) (Dundee Coll. of Art: Sch. of Arch.), Sunnybank, Stanley, Perthshire. John Needham, A. G. Henderson, Prof. W. J. Smith.

Carruthers: Donald Bowes-Lyon (Special Final), 5 Solon Road, S.W.2. W. H. Marmorek, Austin Blomfield, G. A. Crockett.

Cash: Geoffrey James (Final), 'Rossett Holt', 182 Trimmingham Lane, Halifax, C. Sunderland, N. H. Fowler, W. A. Ledgard.

Chapman: Charles Anthony, Dipl.Arch.(Oxford) (Sch. of Tech. Art and Commerce, Oxford: Sch. of Arch.), 19 Star Lane, Ramsey, Huntingdonshire. J. R. Tolson, David Beecher, R. W. Cave.

Cheverton: David (Special Final), Cruachan, Brookhill, Harrow Weald, Middlesex. J. H. Markham, H. H. Clark, M. R. Hofier.

Clarke: Geoffrey Allen, B.A.(Cantab.) (Final) 32 Panton Street, Cambridge. D. W. Roberts, Peter Bicknell, W. P. Dyson.

Clarke: Leslie William (Special Final), 66 Kings Drive, Surbiton, Surrey. Dr. J. L. Martin, A. R. Borrett, Colin Lucas.

Clay: (Miss) Marjorie Joan, B.Arch.(L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), The Clearing, Virginia Water, Surrey. Prof. R. Gardner-Medwin, C. H. Aslin, H. C. Mason.

Collins: John Stanley (Final), 63 Gibbon Road, Kingston-on-Thames, Surrey. Edwin Rice, Clive Pascall, J. W. Spink.

Cooper: Peter Robert, Dip.Arch.(The Polytechnic) (The Poly. Regent Street, London: Sch. of Arch.), 81 Wray Crescent, Tollington Park, N.4. J. S. Walkden, H. A. N. Medd, George Ford.

Cotterell: (Miss) Prudence Ann (Final), Rhododendron Cottage, Congresbury, Nr. Bristol. E. H. Button, W. J. Stenner, T. H. B. Burrough.

Coutts: Alfred Alexander, D.A.(Dundee) (Dundee Coll. of Art: Sch. of Arch.), c/o Northern Ireland Housing Trust, 12 Hope Street, Belfast. John Needham, R. H. Gibson, E. D. Taylor.

Crawforth: Norman Denis (Final), 109 Sutton Road, Hull, E. Yorks. J. Konrad, Lieut.-Colonel J. P. Taylor, A. C. Blackmore.

Curtis: Wilfred Hamilton (Special Final), 23 Worcester Avenue, Grimsby, Lincs. M. H. Forward, L. C. Howitt, H. W. Parnacott.

Daley: Peter Arthur Frank (Special Final), 34 Palermo Road, Willesden, N.W.10. Paul Nightingale, Henry Elder, Edwin Rice.

Daly: Malachy (Special Final), 'Shandon House', Monkstown Road, Monkstown, Co. Dublin, W. J. Cantwell, Raymond McGrath, J. O'H. Hughes.

Davidson: (Miss) Hilary Agnes, D.A.(Edin.) (Edinburgh Coll. of Art: Sch. of Arch.), 7 Craigmillar Park, Edinburgh, 9. T. W. Marwick, J. R. McKay, J. Holt.

Davies: David William (Final), 29 Studdridge Street, Fulham, S.W.6. Arthur Korn, Henry Elder, Paul Nightingale.

Davies: Robert John Owen, B.Arch.(Wales) (Welsh Sch. of Arch.: The Tech. Coll. Cardiff), 1 Berthwin Street, Cardiff. Lewis John, Sir Percy Thomas, Dr. T. A. Lloyd.

Davies: Wilfred Harold (Special Final), 12 Roberts Road, Acocks Green, Birmingham, 27. B. C. S. Underhill, D. A. Goldfinch, M. A. H. Hobbiss.

Dean: John Michael (Final), 24 Peel Road, Brighton, 7, Sussex. K. E. Black, S. H. Tiltman, L. M. Gotch.

Delia: Anthony Robert Francis (Final), 25 Hurlingham Gardens, S.W.6. Edwin Rice, A. D. R. Caroe, A. P. Robinson.

De Ruset: Basil Wallis (Final), Broadhembury, Honiton, Devon. Prof. W. B. Edwards, P. C. Newcombe, J. H. Napper.

Dickins: Roy Hugh (Final), 'Rothbury', 7 Arundel Road, Worthing, Sussex. Paul Nightingale, Edwin Rice, Henry Elder.

Dixon: Francis George (Final), 10 Little Ganett, Welwyn Garden City, Herts. Prof. W. B. Edwards, H. K. Ablett, P. V. Mauger.

Donne: Tom Bevan, B.Arch.(Wales) (Welsh Sch. of Arch.: The Tech. Coll. Cardiff), 31 Lansdowne Avenue, Andover, Hants. Lewis John, Dr. T. A. Lloyd, C. F. Jones.

Dutton: Reginald Thomas Hirons (Special Final), 'Penro', 172 Copthorne Road, Shrewsbury, Shropshire. C. W. McIntosh, A. G. Chant, T. S. Davies.

Dutton: Stanley Hanson, Dipl.Arch.(L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), 8 Garden Hey Road, Hoylake, Cheshire. Prof. R. Gardner-Medwin, G. B. Drury, H. D. Dodds.

Dyson: Arthur Alan, Dip.Arch.(Notm.) (Nottingham Sch. of Arch.), 11 Winifred Crescent, Burton Joyce, Nottingham. J. W. M. Dudding, R. W. Cooper, A. E. Eberlin.

Edmundson: Roger Stanley (Final), 34 Galloway Road, Eden Hill, Peterlee, County Durham. Prof. W. B. Edwards, G. T. Brown, W. J. Scott.

Edwards: William Brian (Final), 88 Hall Street, Southport, Lancs. G. N. Hill, G. S. Pester, U. A. Coates.

Elliott: Gerald James (Final), 89 Long Lane, Grays, Essex. J. S. Walkden, George Fairweather, R. F. Jordan.

Ellis: Kenneth Geoffrey, Dipl.Arch.(Leeds) (Leeds Sch. of Arch.), 5 Oxford Road, Halifax, Yorks. F. Chippindale, D. A. Fowler, Frederick Gibberd.

Eyes: Colin, Dip.Arch.(Cardiff) (Welsh Sch. of Arch.: The Tech. Coll. Cardiff), 16 Cartwright Lane, Fairwater, Cardiff. Lewis John, Dr. T. A. Lloyd, C. F. Jones.

Fahey: Patrick Pearse (Special Final), Arm New Road, Castlerea, Co. Roscommon, Eire. Raymond McGrath, J. J. Robinson, P. J. Munden.

Feakes: Kenneth George Arthur, Dipl.Arch. (Oxford) (Sch. of Tech.: Art and Commerce, Oxford: Sch. of Arch.), 38 Fairview Avenue, Earley, Nr. Reading, Berks. H. H. Clark, E. S. Smith, John Greaves.

Fernback: David Sedgwick Helmar (Sch. of Tech.: Art and Commerce, Oxford: Sch. of Arch.), 56 Harland Road, Southbourne, Bournemouth. R. W. Cave, R. A. Phillips, A. E. Geens.

Fiddies: Charles Edwin (Final), 794 Holderness Road, Hull, Yorks. J. Konrad, L. A. Reynolds, Allanson Hick.

Fidler: Kenneth Gordon (Special Final), 14 Drayton Road, Reading, Berks. T. L. J. Chamberlain, E. S. Smith, T. T. Cumming.

Field: David Leslie (Final), 37 Moorcroft Road, Moseley, Birmingham. G. A. Crockett, L. S. Stanley, A. G. S. Fidler.

Foinette: Leonard Thomas Arnold, B.Arch. (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), 'Graigle', Ruthin Castle, Ruthin, Denbighshire, North Wales. Prof. L. B. Budden, Prof. R. Gardner-Medwin, B. A. Miller.

Foley: Michael Geoffrey Yarde, Dipl.Arch. (U.C.L.) (Bartlett Sch. of Arch.: Univ. of London), Robin Hill, Wendover, Bucks. R. C. White, R. C. White-Cooper, Prof. H. O. Corfiato.

Gammans: Hugh Creighton (Special Final), 22 Birbets Road, S.E.9. A. Beasley, Miss J. E. Townsend, C. W. Box.

Garwood-Jones: Trevor Patrick (Final), 26 James Lane, Leyton, E.10. Paul Nightingale, Henry Elder, Arthur Korn.

Gilbert: Michael William (Final), 'Ranmore', Hawk's Hill, Leatherhead, Surrey. J. S. Walkden, L. R. Bradshaw, R. G. Bell.

Gillings: Ronald James William (Final), 55 Oakdene Road, Betchworth, Surrey. Paul Nightingale, Edwin Rice, Henry Elder.

Glover: John Edward Sampson (Special Final), 2 Raphael Road, Hove, Sussex. G. J. Cuzens, A. E. Henson, E. G. Allen.

Glynn: Bryan John, Dip.Arch.(Cardiff) (Welsh Sch. of Arch.: The Tech. Coll. Cardiff), Crofton, Radr, Cardiff. Lewis John, Dr. T. A. Lloyd, H. F. Robinson.

Graham: George Gilroy (Special Final), 85 Comely Bank Road, Edinburgh, 4. J. R. McKee, Frank Wood, Gordon Tait.

Gribble: Ronald Arthur (Final), 513 Holloway Road, Upper Holloway, N.19. T. E. Scott, C. G. Bath, S. J. Lloyd.

Griffiths: Kenneth Frederick (Final), 117 Falcondale Road, Westbury-on-Trym, Bristol. J. N. Meredith, E. H. Button, T. H. B. Burrough.

Grillet: Christophe Norman, B.A.(Cantab.) (Final), 32 Panton Street, Cambridge. D. W. Roberts, Peter Bicknell, W. P. Dyson.

Grist: Michael Wilfred (Final), 484 Crownhill Road, Plymouth, Devon. E. U. Channon, H. J. Hammick, Captain S. R. Edwards.

Groves: Philip Denys Baker (Final), 47 Kenilworth Drive, Croxley Green, Rickmansworth, Herts. J. S. Walkden, E. D. Mills, David Jenkin.

Hallam: Richard William (Special Final), 65 Newbury Gardens, Upminster, Essex. T. E. Scott, C. G. Bath, S. F. Burley.

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Haskell: John Christopher (Final), Southbank, Guildown Road, Guildford, Surrey. B. H. Peake and applying for nomination by the Council under Bye-law 3(d).

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Weir: **James** (Special Final), 23 East Academy Street, Wishaw, Lanarkshire. John Steel, L. W. Hutson, Donald Jack.

Wells: **Raymond** (Final), 52A Waterloo Street, Hove, 2, Sussex. David Clarke, K. E. Black, F. C. Benz.

West: **John Stuart**, B.Arch. (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), 12A Sefton Drive, Sefton Park, Liverpool, 8. Prof. R. Gardner-Medwin, Prof. L. B. Budden, George Whitby.

White: **David Bernard**, B.A.(Arch.) (Lond.) (Bartlett Sch. of Arch.: Univ. of London), 40 Tany's Dell, Harlow, Essex. Prof. H. O. Corfato, R. C. White-Cooper, Thomas Ritchie.

White: **John Justin**, M.C.D., B.Arch. (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), Doone, Caidy Road, West Kirby, Cheshire. Prof. L. B. Budden, Dr. Ronald Bradbury, R. R. Young.

White: **Ronald** (Final), 65 Stamford Road, West Bridgford, Nottingham. J. W. M. Dudding, P. J. Bartlett, F. A. Broadhead.

Wiggleworth: **John Michael**, B.Arch. (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), 'Green Bank', Mill Gap Road, Eastbourne, Sussex. Prof. R. Gardner-Medwin, Prof. H. M. Wright, R. R. Young.

Wild: **Alan Eric Albert**, Dip.Arch. (The Polytechnic) (The Poly, Regent Street, London: Sch. of Arch.), 12 Routh Road, Wandsworth Common, S.W.18. J. S. Walkden, E. H. Banks, H. A. N. Medd.

Williams: **John Alfred**, Dipl.Arch. (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), 249 Pilch Lane, Knotty Ash, Liverpool, 14. Prof. R. Gardner-Medwin, E. N. Clifton, W. H. Gunton.

Williams: **John Samuel**, Dip.Arch. (Leics.) (Leicester Coll. of Art. and Tech. Sch. of Arch.), 'Morwylva', South Beach, Pwllheli, Caernarvonshire. T. S. Davies, Robert Pierce, F. Chippindale.

Williams: **Richard George** (Final), 1 Keyes Road, Cricklewood, N.W.2. S. W. J. Smith, W. C. Kemp, H. D. Hendry.

Wilson: **Donald** (Final), 2 East View, Long Causeway, Pinderfields, Wakefield. D. A. Fowler, Prof. J. S. Allen, J. Konrad.

Wilson: Kenneth Hartley (Special Final), 10 The Poplars, Arbury Road, Stockingford, Nuneaton, E. W. Haysom, G. R. Barnsley, G. C. Gadd.

Wintle: Owen Wentworth (Special Final), 15 Clarence Square, Cheltenham, Glos. H. T. Rainger, S. E. Urwin, H. S. Davis.

Woodford: Norman Louis (Final), 14 Purkess Close, Chandler's Ford, Hants. Colonel R. F. Gutteridge, A. C. Townsend, J. B. Brandt.

Young: Peter Alan George (Final), 43c The Strand, Topsham, Devon. G. D. G. Hake, Edward Narracott, H. B. Rowe.

AS LICENTIATES (3)

Bion: Jean Moise, 81 Burnham Road, Leigh-on-Sea, Essex. J. M. Scott, A. S. Belcham, P. F. Burridge.

Brewer: Philip Gerald Drake, County Architect's Department, County Hall, Dorchester, Dorset; 62 Richmond Wood Road, Bournemouth, Hants. E. J. Ricketts, and the President and Hon. Secretary of the Wilts and Dorset Society of Architects under Bye-law 3(a).

Simons: Richard Alfred, Building Research Station, Garston, nr. Watford, Herts; 'Meadow-side', Porridge Hill, Bedmond, Abbots Langley, Herts. E. W. Pedley, Archibald Scott, Henry Elder.

ELECTION: 3 MAY 1955

An election of candidates for membership will take place on 3 May 1955. The names and addresses of the overseas candidates, with the names of their proposers, are herewith published for the information of members. Notice of any objection or any other communication respecting them must be sent to the Secretary, R.I.B.A., not later than Wednesday 20 April 1955.

The names following the applicant's address are those of his proposers.

AS FELLOWS (2)

Chaplin: Sidney George [A 1930], Heretaunga

Street, Hastings, New Zealand; McHardy Street, Havelock North. H. L. Massey, J. I. King, W. G. Young.

Phillips: Herbert Eric [A 1923], P.O. Box 122, Hastings, New Zealand. H. L. Massey, J. I. King, W. G. Young.

AS ASSOCIATES (8)

Fong: Ying Leong, B.Arch. (Melbourne) (Passed a qualifying Exam. approved by the R.A.I.A.), 11 Sin Chew Kee Street, Kuala Lumpur, Malaya. R. G. Parker, Norman Weekes, Harry Winbush.

Leaning: John Dalton, B.Arch. (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), c/o Dr. Vejde, Villagatan 4B, Växjö, Sweden. Prof. L. B. Budden, B. A. Miller, Herbert Kenchington.

McIntyre: Hamish Webster Fairlie, Dip.Arch. (Abdn.) (Aberdeen Sch. of Arch.: Robert Gordon's Tech. Coll.), Apt. 5, 1081 Nicola Street, Vancouver, B.C., Canada. E. F. Davies, T. S. Sutherland, Fenton Wyness.

McIntyre: Hector Laird, B.Arch. (L'pool) (Liverpool Sch. of Arch.: Univ. of Liverpool), 2878 Parkview Drive, Victoria, B.C., Canada. Prof. L. B. Budden, R. R. Young, B. A. Miller.

Miller: Clive McDonald, A.S.T.C. (Arch.) (Passed a qualifying Exam. approved by the R.A.I.A.), Department of Works, Box 1736.P., Melbourne, C.I., Victoria, Australia. L. M. Perrott, A. S. Hall, R. G. Parker.

Mowbray: Trevor John, Dipl.Arch. (U.C.L.) (Bartlett Sch. of Arch.: Univ. of London), Box 53, Post Office, Mascot, Sydney, N.S.W., Australia. Prof. H. O. Corfato, R. C. White-Cooper, Thomas Ritchie.

Parandekar: Dattatraya Raghunath (Final), Assistant Government Architect, Public Works Department, Secretariat, Patna (Bihar), India. Prof. S. S. Reuben, S. H. Parekar, H. N. Dallas.

Parker: Desmond John, B.Arch. (Melbourne) (Passed a qualifying Exam. approved by the R.A.I.A.), 21 Alder Street, South Caulfield, S.E.8, Victoria, Australia. R. S. Demaine, W. P. R. Godfrey, Harry Winbush.

practice qualification, apart from a few exceptions under Regulation 26B, were discontinued and only those who qualify by the examinations recognised for the purpose may be admitted to the register. These examinations are identical with those which qualify candidates for the Associateship, R.I.B.A.

There has therefore been a period of 21 years in which persons holding a practice qualification have had the opportunity to apply for election as Licentiates.

By resolution of the Council in accordance with Bye-law 7, further admissions to the class of the Licentiates will be discontinued as from 31 December 1955.

6. British Architects' Conference, 1956. The Council accepted the invitation of the Norfolk and Norwich Association of Architects to hold the British Architects' Conference at Norwich in 1956.

7. Membership. The following members were elected: as Honorary Fellow 1, as Fellows 34, as Associates 135.

8. Students. 105 Probationers were elected as Students.

9. Applications for Election. Applications for

Notes from the Minutes of the Council

MEETING HELD ON 7 DECEMBER 1954

1. Appointments. (a) *Ministry of Housing and Local Government Housing Medals*, 1955. Chairman of Awards Committee for Region No. 4—Eastern. Mr. S. Vincent Goodman [L] in place of Mr. E. C. R. Sandon [A].

(b) *West Midlands Advisory Council for Technical, Commercial and Art Education*: R.I.B.A. Representative on Art and Industrial Design Advisory Committee. Mr. S. T. Walker [F], President, Birmingham and Five Counties Architectural Association in place of Mr. G. B. Cox [F].

(c) *Code of Practice for Frost Precautions in Buildings*: R.I.B.A. Representative on Drafting Committee. Mr. George Fairweather [F].

(d) *R.I.B.A. Representative on B.S.I. Committee CEB/6/12—Precast Concrete Eaves Gutters*. Mr. F. H. Heaven [A].

2. The Honorary Fellowship. The Right Hon. Sir David Eccles, K.C.V.O., M.P., Minister of Education, has accepted the Council's nomination for election as an Honorary Fellow.

3. The Honorary Associateship. Mr. H. M. Colvin, Mr. Henry Morris and Mr. Robert W. Pilot have accepted the Council's nominations for election as Honorary Associates. Mr. Pilot is President of the Royal Canadian Academy. His name was recommended by the Royal Architectural Institute of Canada.

4. R.I.B.A. Architecture Bronze Medal: The South-Eastern Society of Architects. Formal approval was given to the recommendation of the Jury that the award of the R.I.B.A. Architecture Bronze Medal in the area of the South-Eastern Society of Architects for the eight-year period ending 31 December 1953 be made in favour of the Air Forces Memorial at Runnymede designed by Sir Edward Maufe, R.A. [F].

5. The Licentiateship, R.I.B.A. Since 1 January 1934, the class of Licentiates has been open only to those whose names are on the register maintained by the Architects' Registration Council of the United Kingdom. As from 1 August 1940, admissions to this register on a

election were approved as follows: *Election 4 January 1955*. As Honorary Fellow 1, as Honorary Associates 3, as Fellows 6, as Associates 63. *Election 5 April 1955 (Overseas Candidates)*. As Associates 13.

10. Applications for Reinstatement. The following applications were approved: as Associate, Arthur Henry Ernest Shearing; as Licentiates, Ronald Arthur Kettlewell, Sydney Ernest Tarrant.

11. Resignations. The following resignations were accepted with regret: Mrs. Esme Mabel Straun Bodgeman [A], John Henry Wood [L].

12. Applications for Transfer to Retired Members' Class under Bye-law 15. The following applications were approved: as Retired Fellows, William Lee Clarke, Alfred Godwin Gesson. As Retired Associates: Wilfroy Anson Cheers, Gerald Davidson, William Herbert Martin. As Retired Licentiates: Frederick Montague Deakin, Herbert Percy Maxwell.

13. Obituary. The Secretary reported with regret the death of the following members: Professor Gustavo Giovannoni [H.C.M.], Francis Andrew Oldacre Jaffray [F], William Harold Jones [F], Charles Alfred Smeed [F], Harry Cook [Reid. F], Eric Murray [A], Frank George Richardson [Reid. A], William Todd Wash [L], Thomas Herbert Waumsley [Reid. L], T. H. Nicholson, O.B.E., of Messrs. Saffery, Sons & Co., The Royal Institute's Accountants.

By resolution of the Council the sympathy and condolences of the Royal Institute have been conveyed to their relatives.

Obituaries

Cyril Arthur Farey died on 7 December 1954. Born in 1888, he was educated at Tonbridge School and studied architecture at the Architectural Association and the Royal Academy School of Architecture. After serving articles with Horace Field [F] he became assistant to Ernest Newton, R.A. In 1909 he won a travelling studentship at the A.A., in 1910 received an Hon. Mention in the R.I.B.A. Measured Drawings prize, in 1911 he won the Royal Academy Schools Bronze Medal for first year work, in 1913 the R.I.B.A. Tite Prize, in 1914 the R.I.B.A. Soane Medallion and in 1921 the Royal Academy Schools Gold Medal and Edward Stott Travelling Studentship.

He started practice in 1913 in Lincoln's Inn, moved to Salisbury in 1919, but returned to Bedford Square in 1920 where he remained until 1928, when he moved to Prince Albert Road, Regent's Park. In 1947 he took his son Michael Farey, M.A. [A] and John J. Adams [A] into partnership.

He had many successes in competitions. These were: 1911 Trevor Estate, Knightsbridge (in collaboration with Horace Field [F]); 1912 COUNTRY LIFE cottage, second premium; 1913 COUNTRY LIFE house, second premium; 1916 Civic Arts war memorial; 1919 Bristol housing; 1920 Leeds department store, second premium; 1920 Hampstead flats, third premium (in collaboration with C. Evelyn Simmons and A. Trystan Edwards [F]); 1923 Holy Trinity Church, Hounslow; 1924 Raffles College, Singapore (in collaboration with Graham R. Dawbarn, C.B.E. [F]); 1925 COUNTRY LIFE house, second premium; 1926 St. George's Hall, Harrow; 1929 street design in Hull, second premium; 1930 Carlisle street improvement scheme (in collaboration with Knott and Moseley [A/A]).

His executed buildings in addition to those won in competition were St. Michael's Church, Tokyngton, St. Mark's Church, Teddington, St. Peter's Church, Grange Park, All Hallows Church, Greenford, Crawley Methodist Church, vicarages at Kingsbury and Greenford, the clergy house at Acton and numerous private houses. He was Diocesan Architect and Surveyor to the London Diocese.

With A. Trystan Edwards [F] he collaborated in a book, *Architectural Drawing and Perspective Rendering*.

Mr. A. G. Shoosmith, O.B.E. [F], writes: 'Few architects of his generation can have been left untouched by the death of Cyril Farey; even those who did not know him and the many of the general public who visited the architectural room at the Royal Academy must have felt gladdened year by year at the sight of those drawings, with their sweet colour and the clear, peaceful skies that so well reflected the nature of the artist.'

'I had it from Cyril Farey's father long ago that he began to draw very early. At Tonbridge School he had the good fortune to have as his instructor Mr. Martin Buckmaster [Hon. A], the doyen of public school art masters, whose influence changed the course of his career from furniture to architecture. With an interest in Georgian houses, developed as a professional pupil of Horace Field, and an inborn gift of colour, he gravitated to the office of Ernest Newton, where he became the friend of Alick Horsnell. The long procession of Farey's drawings to pass in the course of years across the walls of the Royal Academy may have started earlier, but it was on two or three bright little drawings for Ernest Newton, hung in the summer of 1911, that I first met the name of Cyril Farey. I met the man himself a few months later, after entering the Royal Academy School; a man so retiring that he came and went almost unnoticed, but who had already won a bronze medal for his first year's work.'

'Despite his shyness, Farey had a gift for friendship, and it was within the evening of our first words together that I resolved to take the chambers above his in Great Ormond Street, where in the following summer (1912) we were joined by another fellow student, James Whitelaw, that portent of creative genius so untimely quenched a bare year later. But it was an unforgettable year of delightful and, to me, instructive companionship, in a quiet Georgian backwater, a sort of *quartier latin* in London. Horsnell lived round the corner in Doughty Street, and Lawrence Dale not much further away. Both were occasional visitors, and at random I recall T. S. Tait, William Newton, A. T. Scott, Philip Hepworth (fresh from Paris), James Macgregor and Verner Rees, among others.'

'Already a free-lance at the age of 23, Farey had a steady stream of commissions coming in, and worked incessantly upon them. No one could have been happier at work; whistling snatches of a popular ragtime or of an aria from Puccini marked relief from minutes of almost breathless concentration. But amidst all that he did for others he found time to win prizes in two competitions promoted by COUNTRY LIFE for designs for houses, the smaller of which he later had the happiness of carrying out for his father. When Whitelaw came, with ideas for the Soane competition already in embryo, Farey was moved to enter for the Tite prize; and the sensational design for a terminal railway station, never fully finished, and the quiet dignified façade for a royal palace, proceeded side by side and were both successful.'

'Farey's entry for the Soane in the following year proceeded partly from his enjoyment of

such idealistic contests, which he won as if by habit; and partly from a desire to do honour to Whitelaw, who had died in the meantime, and to whom he always avowed he owed so much. To us, and to a few others, Whitelaw was a prophet. The subject set for the Soane almost made the prize a gift to Farey; and on a wild and picturesque site conceived in his romantic imagination he set a castle fit for a fairy-tale king, and presented it with perhaps the most captivating drawings that even he ever made. It was a piece of sheer artistry; gay, charming, and beautiful.'

'To Farey the quality of gaiety was essential to complete beauty. He had a zest for life, and the world around him; a spring morning, the noisy pageant of a military band marching down the street, foreign travel, the trees in Kensington Gardens, a French dinner in Soho with a bottle of his favourite Beaune, Twickenham, the Russian ballet. And no one enjoyed a student's good-humoured frolic more than he.'

'Gentle, sunny, affectionate, a lover of life and of all things kind and beautiful: that was Cyril Farey as I knew him more than forty years ago, and he never changed. A great war severed our companionship, and afterwards, for ten years, two continents lay between us. To his earlier trophies as a student he added the Royal Academy gold medal. His executed buildings I know only by his drawings; I believe they were not his first interest, and it is for his skill as a draughtsman that he will be remembered. The procession of his exhibited drawings lengthened to over six hundred. How many thousands of perspectives he made nobody knows. But success never touched his modesty, and he was retiring and unsophisticated to the last. He was almost wholly absorbed in his art, his family, his house on the further side of Regent's Park; and on the more frequented walks of London life he was seldom seen.'

Mr. Graham Dawbarn, C.B.E. [F], writes: 'I would like to be permitted to add a memory of Cyril Farey. I returned from Hong Kong in 1923, young and inexperienced. He had already achieved some fame but I was bold enough to ask him if he would enter a competition with me for the Raffles College, Singapore. For the first time I had intimate association with a trained mind working in three dimensions; and I learnt a great deal from the way in which he turned my immature ideas of plan into a unified—and, I think, beautiful—group of buildings. We were successful, though, as so often happens, only part of our dream became reality.'

'I stayed with him at 19 Bedford Square for the best part of a year, setting up a number of his perspectives. Apart from the interest of seeing the drawings from different architects that poured into his office, I had the advantage of watching a master craftsman at work: the confident way in which he chose his view-point, his delightful little preliminary sketches (which never saw the light of day) and the technique whereby he obtained that luminous background. Apart from William Walcot he had, at his best, few if any rivals; and he had the gift of adding quality to a moderate design.'

'Perhaps if he had been a lesser craftsman he would have achieved more as an architect. But I think that he was happy as he was; and his contribution was by no means small.'

'I shall always remember that year as one of the happiest of my life. By his too-early death we have lost a man of considerable gifts, friendly, modest, unruffled and of great charm.'

Mr. Martin A. Buckmaster [Hon. A] writes: 'May I add a short note on the sad loss of Cyril Farey to all his colleagues and friends. I have known Cyril Farey since 1903 when

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he was a boy at Tonbridge School in my architectural class and he showed promise and keenness at that early age; and I have kept in contact with him for over fifty years. He was the rare example of the artist architect, so necessary in these days of bold buildings, a fine water-colour painter and an accomplished perspective draughtsman and in this way he added lustre to many distinguished architects of the present day. Cyril Farey was always cheerful, a tolerant critic, and a good friend; he will be greatly missed.

Editor's Note: Mrs. Farey, Michael and Madeline ask us to express their deep gratitude to the many members of the profession, who share their grief and who have written such kind letters of sympathy.

The architectural and perspective partnership, which Cyril Farey founded, will be continued by Michael Farey and John Adams under the title of 'Farey and Adams' at the same address as before, namely, 83 Prince Albert Road, Regent's Park, London, N.W.8.

William Harold Lane Crawford [A] died on 23 September, aged 70.

Mr. Crawford received his training at the Architectural Association and became articled to Mr. A. N. Prentice and from 1912 to 1914 he practised with Mr. Wilson under the style of Crawford and Wilson.

About 1931 Mr. Crawford became a novelist and during his lifetime 47 of his novels were published by Messrs. Ward Lock and Company. His 48th novel, *Another Woman's Poison*, was published a month after his death, and his last work, *The Cat Dies First*, will be published early this year.

He had plays produced at the Embassy Theatre, the Theatre Royal, Windsor, and the Q. Theatre, and on television and sound radio.

R. Burns Dick [F] died on 11 December, aged 86.

His partner Mr. R. Norman Mackellar [F] writes: 'Mr. Burns Dick, a well-known Newcastle upon Tyne architect, retired from practice some years ago but always retained his interest in his native city. He began his architectural career with Mr. W. Lister Newcombe [F] to whom he was articled, and was later with Mr. W. H. Knowles, F.S.A. [F].

He commenced practice on his own and in 1899 entered into partnership with Mr. James T. Cackett [F], who died in 1928. In 1920 Mr. R. Norman Mackellar [F] came to the firm and later joined as a partner, and in 1950 his son, Robert Mackellar [A], became a partner. The practice continues as Cackett, Burns Dick and Mackellar.

Burns Dick was an excellent planner and his designs were always straightforward, whether in the free Renaissance manner or of 'Gothic' character. He loved to solve a complicated problem, especially if the site was a difficult one, and his solutions were always simple and direct.

He won several competitions, among them being police court buildings at Warrington and Berwick-on-Tweed, model lodging-houses at Aberdeen and Newcastle, Trinity Presbyterian church, Newcastle, and Hexham Methodist church. He also designed St. George's Presbyterian church, Newcastle, and was concerned with the architectural side of the Tyne bridge in conjunction with Messrs. Mott, Hay and Anderson, civil engineers.

Works executed in conjunction with Mr. Cackett included the Laing art gallery, Cross House, Northern Conservative club, Armstrong naval yard and offices, Walker shipyard offices, Short Bros. naval aircraft works at Cardington, Bedford and Rochester, the

Robert Sinclair Tobacco Company's buildings, and the reconstruction of the Gas Company's buildings, Newcastle.

Buildings during his association with Mr. Mackellar were the Newcastle police and fire headquarters, extensions to the Northumberland County Hall, Andrews House, the P.C.H.A. buildings and hospital work at South Shields, Tynemouth and Newcastle.

Burns Dick was keenly interested in the Northern Architectural Association, of which he was President from 1914 to 1918 and Hon. Treasurer from 1928 to 1947; he was also a trustee of the Association and of the Newcastle Conservative and Unionist Club. He was in the Tynemouth Volunteer Artillery and later transferred as a Captain in the Royal Garrison Artillery, from which he was seconded in 1915 to carry out the naval aircraft works for Messrs. Short Bros.

In 1924 he was a founder member of the Northumberland and Newcastle Society and took a prominent part in bringing to public notice the desirability of preserving and improving the amenities of the city and county. He went to endless trouble preparing schemes for new streets and a 'green belt' for the city and he advocated alternative sites for the much-debated problem of Newcastle's Town Hall.

Burns Dick was an able draughtsman and lived in the days when pen-and-ink sketches and perspectives were fashionable. He never set up a perspective but relied on his eye and judgment with unerring skill. He was also good at water colour work but he was happiest with pen and pencil.

He was fond of travel and visited most of the European countries and America. He could always be relied on to give an address or lecture. He spoke well and although he took considerable time to prepare what he had to say he gave the impression that most of his matter was extempore. His presidential address to the Northern Architectural Association, delivered in November 1914 and published in the R.I.B.A. JOURNAL of 19 December 1914, is typical of his manner and matter.'

Albert Reginald Shibley [F] died on 25 October, aged 62.

Mr. Shibley trained at the Liverpool School of Architecture before going to the office of Messrs. Bourchier, Tatchell and Galsworthy. In 1921 he set up in private practice and had his office first at Worth, Sussex, and later at Reigate.

His principal works included business premises in Cambridge, a golf clubhouse at Copthorne, Sussex, and domestic works carried out mainly in Surrey and Sussex. He was also engaged on war damage work for the boroughs of Reigate and Eastbourne and for the housing department of Scotland Yard.

William Todd Wash [L] died on 31 May, aged 60.

Mr. Wash began his architectural career with Messrs. Hedley and Douglas Pollock, of Baker Street, London, later joining the staff of Messrs. Yates, Cook and Darbysshire. He was also with the Ministry of Works for a period.

He served in the Royal Engineers in both world wars, and in the second war he was stationed in the Middle East for three years.

Ronald Leslie Hounsell [A] died on 20 September, aged 34.

Mr. Hounsell received his architectural training at the West Ham Municipal College, the North-East Essex Technical College,

Walthamstow, and later at the Regent Street Polytechnic, London, and the Kingston School of Art. In 1937 he joined the staff of the architect's department of the Cooperative Wholesale Society; in 1941 he became technical assistant in the A.R.P. architect's department of the Walthamstow Borough Council, where he had to deal with war-damaged properties and A.R.P. buildings. He became architectural assistant to the architectural section of that Council in 1944, and when an architectural department was formed he took over the temporary housing programme of 535 houses as well as other schemes.

In 1948 he moved to the architect's section of the Twickenham Borough Council, as senior architectural assistant, where he designed several schemes of shops and residential buildings. He became chief assistant in the engineer and surveyor's department of the Walthamstow Holy Cross Urban District Council in 1950, where he was responsible for housing estates, including schemes for aged persons' buildings.

Thomas Herbert Waumsley [Retired L] died on 15 November, aged 83.

Mr. Waumsley received his training in the office of Mr. T. B. Thompson, of Hull, and in 1928 he was taken into partnership by the late Mr. A. N. Bromley and Mr. T. N. Cartwright, under the style of Messrs. Bromley, Cartwright and Waumsley. The practice is being continued by Messrs. Evans, Cartwright and Woollatt, of Nottingham.

Mr. Waumsley was an honorary life member of the Nottingham, Derby and Lincoln Society of Architects.

Cecil Henry Perkins [A] died suddenly on 29 October 1954, aged 73.

Privately educated, he was articled to a Wokingham architect and surveyor, became an Associate of the Royal Institute in 1907 and after some years in Wisbech and Wolverhampton went to Carlisle where he became chief assistant to the late J. H. Martindale, F.S.A. [F]. He was engaged during that time on drawings in connection with the Cathedral and the restoration and repairs of numerous churches scattered throughout the Diocese of Carlisle. He specialised in stonework, internal fittings and tracery screens. In 1912 he returned to the south, to Bracknell, Berks. In the first world war he joined Kitchener's Army and was commissioned with the rank of 2nd Lt. in the R.E., was badly wounded and invalided out in 1917. After the war he opened a practice in Holborn, London. Apart from general City work including factories and banks, he retained a deep and active interest in the repair and restoration of old buildings and churches. He also played an active part in the work of the Society for the Protection of Ancient Buildings, of which he was a member. The case records contain the names of over twenty churches in London alone since 1925, after which he became architect to the Bishop of Kingston. More recent work included restoration of mediaeval churches including the Chapel of Ease at Boughton Lees, Kent, and restoration—uncompleted at the time of his death—of All Saints Church, Boughton Aluph, Kent, above the Pilgrims' Way. Other works for which he was responsible were extensive repairs and restorations at Hurstmonceux Castle for the late Colonel Lowther, repairs at Branksome Castle on Brownsea Island in Poole Harbour for Mrs. Bonham Christie and a mausoleum at Highgate for the late Lady Dalziel of Wooler. In later years he was absorbed in the legal side of architectural practice and arbitrated in many cases. He will be remembered

for his remarkable clarity of thought and abounding good humour. His interests were varied, of later years gardening occupied much of his spare time and his profound knowledge of layout was of great value in the setting of works of a domestic nature, but his love of old buildings took first place. No out-of-town survey was complete without a deviation en route to visit or revisit an old church. He was remarkably fit and active and was always ready to climb scaffolding to tower or spire in the course of examination of work in progress. During the past fifteen years he had worked in close association with Mr. G. W. Hardy [L] in whose name the practice in Gray's Inn will be carried on.

Members' Column

This column is reserved for notices of changes of address, partnership and partnerships vacant or wanted, practices for sale or wanted, office accommodation, and personal notices other than of posts wanted as salaried assistants for which the Institute's Employment Register is maintained.

APPOINTMENTS

Mr. Noshir B. Morena [A] has been appointed Government Temporary Architect, Grade 1, Public Works Department, Fort, Colombo, Ceylon, where he will be pleased to receive trade catalogues, etc.

The Council of the County Borough of Burton upon Trent have established a separate architect's department and have appointed **Mr. W. Porter Mitchell** [A] Borough Architect. Mr. Mitchell was previously Chief Assistant Architect.

Mr. D. C. Robinson [A] has taken an appointment with the Government of the Gold Coast, c/o Tema Development Corporation, Private Post Bag, Accra, Gold Coast.

PRACTICES AND PARTNERSHIPS

Mr. Norman M. Barrett [L], 67 Albert Road, Colne, Lancs, will in future practise under the style of Norman M. Barrett and Sons—partners Mr. N. M. Barrett [L], Mr. P. R. Barrett [A] and Mr. J. K. Barrett, A.R.I.C.S. The firm have opened a branch office at Yorkshire Penny Bank Chambers, Barnoldswick, Via Colne, Lancs, where trade catalogues will be welcomed.

Mr. H. Munro Cautley [A] and **Mr. Leslie Barefoot**, G.C. [A] have taken into partnership **Mr. Peter Barefoot** [A]. They will continue to practise under the name of Cautley and Barefoot, Chartered Architects, at 22 The Thorofare, Ipswich.

Mr. Stirling Craig [A] has relinquished his appointment as Senior Architect to Stevenage Development Corporation and is practising in partnership with his wife, Margaret Craig, at North Lodge, Shephall, Stevenage, Herts, where they will be pleased to receive trade catalogues, etc.

Major B. C. Deacon [F] has retired from the practice of Deacon and Laing, 9 St. Paul's Square, Bedford. The remaining partner, Mr. A. R. Laing [A], will continue to practise under the same style and from the same address.

Miss Janet B. Gossopius [A] has resigned her appointment with Barrow in Furness Corporation and has begun practice at High Hollin Bank, Coniston, Lancashire, where she will be pleased to receive trade catalogues, etc. (Coniston 267).

Mr. P. K. Hughes [A] has commenced practice

at Chesterfield Chambers, Westbourne Place, Queen's Road, Bristol 8, and would like to receive trade catalogues, etc.

Mr. Lewis E. Martin [A] has entered into partnership with Mr. D. George Porter [A]. The firm is known by the style of Porter and Martin, Registered Architects and Town Planning Consultants, and practises at 219 Lambton Quay, Wellington, New Zealand.

Mr. Berkeley L. Moir [F] and **W. Helen Moir** [A] have opened an office in the Prudential Buildings, South Parade, Rochdale, and are practising as Chartered Architects and Town Planning Consultants under the title of Moir and Bateman [F/A].

Mr. John Nelson [A] has taken into partnership **Mr. J. Roy Parker** [A] and the practice will be continued at 25 Fenwick Street, Liverpool 2, under the style of Nelson and Parker.

Mr. Winston Walker [F] has relinquished his appointment with the Admiralty as advisor to the Naval Staff on Tactical Concealment, and has returned to private practice. He has joined the firm of Sir John Brown, A. E. Henson and Partners [F/F] at 117 Sloane Street, London, S.W.1 (SLOane 8253). The firm of Walker and Walker ceases at 107 Sloane Street, but this will remain his private address (SLOane 1410).

CHANGES OF ADDRESS

Mr. J. Russell Baxter [A] is now practising as architect and town planner in Kitimat, British Columbia, Canada. Until recently Mr. Baxter was resident architect with the Aluminium Company of Canada Ltd.

Miss Isabel A. Bold [A] has changed her address to The Vicarage, Over, Cambridgeshire.

Messrs. Burles and Newton [A/A] have moved to No. 25 Bedford Row, Bloomsbury, London, W.C.1 (CHAncery 9538), where they will be pleased to receive trade catalogues. The address of the Southend-on-Sea office remains unchanged.

The firm of **Chapman, Cohen and Versino** have moved from 40 Burg Street, Cape Town, to 4th Floor, A.A. House, Queen Victoria Street, Cape Town, South Africa.

Mr. Clifford William Dunnington [A] has changed his address to 80 The Hollow, Littleover, Derby.

Mr. Alexander Flinder [A] has removed his offices to 30b Wimpole Street, London, W.1 (HUNTER 0841/2).

Mr. J. B. H. Grundy [A] has removed to 'Lyncroft', North Avenue, Clarendon Park, Leicester.

Mr. Geoffrey Mason Fuller [A] has changed his home address to 15 Tankerville Terrace, Jesmond, Newcastle upon Tyne 2 (Newcastle 812740).

Mr. H. A. Halpern [A] has opened new offices at 193 Nelson Road, Gillingham, Kent, where he will be pleased to continue receiving trade catalogues, etc. (Gill. 58041).

Mr. Bernard Kreiger [A] has changed his private address to Flat J, 18 Eaton Square, London, S.W.1 (SLOane 8479), and his business address to 42 Park Street, London, W.1.

Mr. A. W. Lester [A] has removed from 24a Eaton Place, London, S.W.1, to 15 Willifield Way, N.W.11 (SPEEDwell 7328).

Mr. M. J. Peto [A] left London for Southern Rhodesia on the 21 January where his address will be c/o Messrs. Montgomerie and Oldfield, Architects, Lonrho Buildings, Baker Avenue, Salisbury, Southern Rhodesia.

Mr. Michael H. Shephard [A] and Mr. M. Shephard have left 2 Collingwood Walk, Vange, and their new address is Rosemount, Lyncombe Hill, Bath, Somerset (Bath 60790).

Mr. D. C. Small [A] has changed his address from 24 Billing Road, Northampton, Borough Architect's Department, Guildhall, Northampton.

Mr. S. O. Standing [A] has changed his address to 29 Mill Drive, Hove 4, Sussex.

Mr. W. J. Twemlow [A] has moved his office to 111 Guardian Building, Leslie Street, Vereeniging, South Africa, P.O. Box 69, Vereeniging (Vereeniging 2-1213).

Messrs. Venning and Ellis [L/A] have changed their address to the National Provincial Building, Trehawke House, Liskeard, Cornwall.

PRACTICES AND PARTNERSHIPS WANTED AND AVAILABLE

Fellow wishes to acquire practice in Beverley, Hull, Malton or York. Box 131, c/o Secretary, R.I.B.A.

London firm of architects seek partnership with west country firm to develop present connections in that area. Box 1, c/o Secretary, R.I.B.A.

Associate (A.A. Dipl.), 49, wide and responsible experience, 17 years as principal, seeks partnership or position leading thereto in established practice. Capital available. Box 2, c/o Secretary, R.I.B.A.

Associate (35), school trained, experience with well-known firms in Edinburgh and London and at present lecturer at school of architecture in London, seeks partnership with firm in the London area, preferably West or West Central. Small capital available. Box 3, c/o Secretary, R.I.B.A.

Associate seeks junior partnership or position leading thereto in London area. Capital available. Box 4, c/o Secretary, R.I.B.A.

Associate (A.A. Dipl.), 42, 11 years as principal in small seaside practice, domestic and school work, seeks partnership or post leading there to in busier centre in Kent or London area. Some capital available. Box 6, c/o Secretary, R.I.B.A.

WANTED AND FOR SALE

Associate requires secondhand plan chest. Box 5, c/o Secretary, R.I.B.A.

CHANGE OF NAME

Mr. Hans Peter Tischler [A] of 3 Upper Park Road, (Flat 3), London, N.W.3, changed his surname as from 1 January 1955 to Trenton.

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